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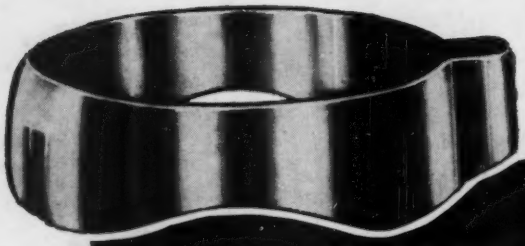

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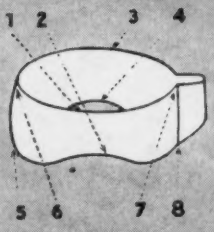

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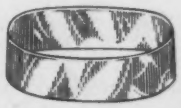

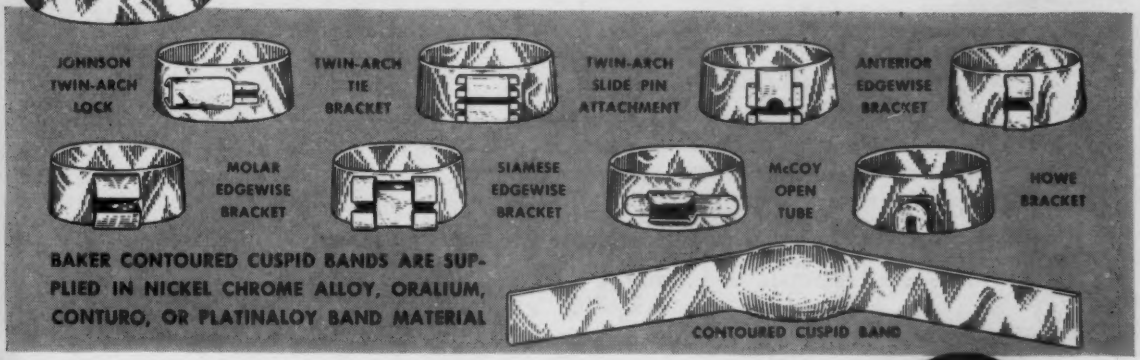
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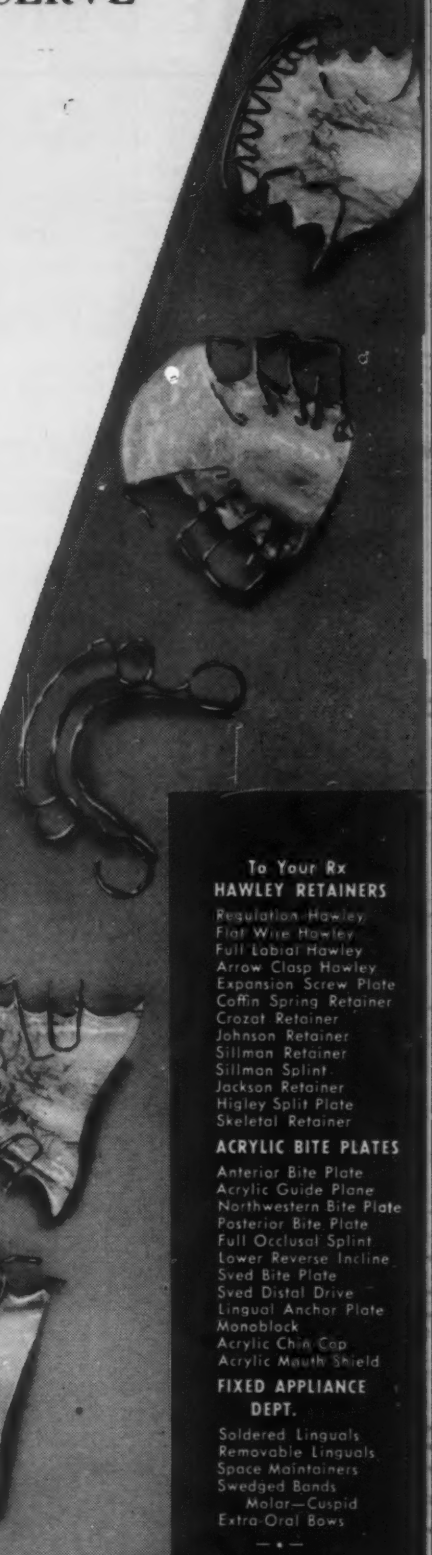

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by

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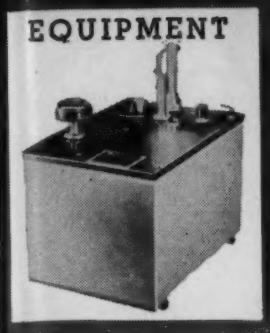

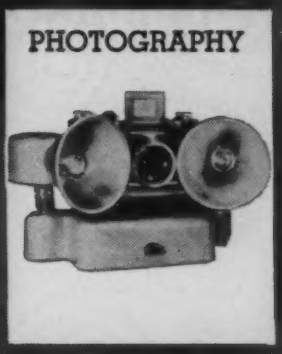

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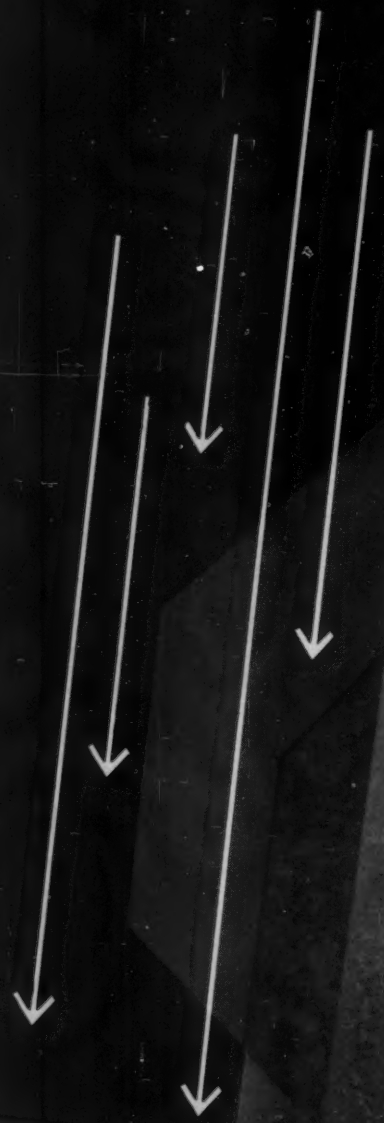

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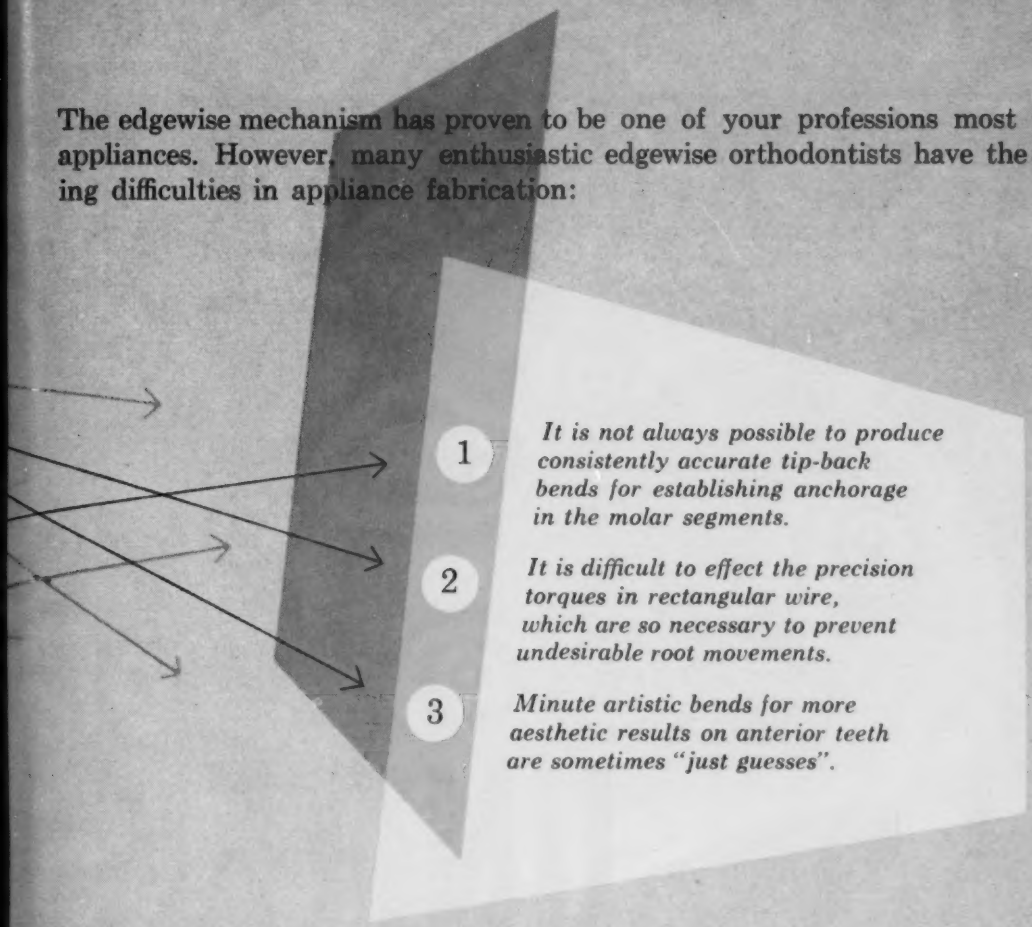
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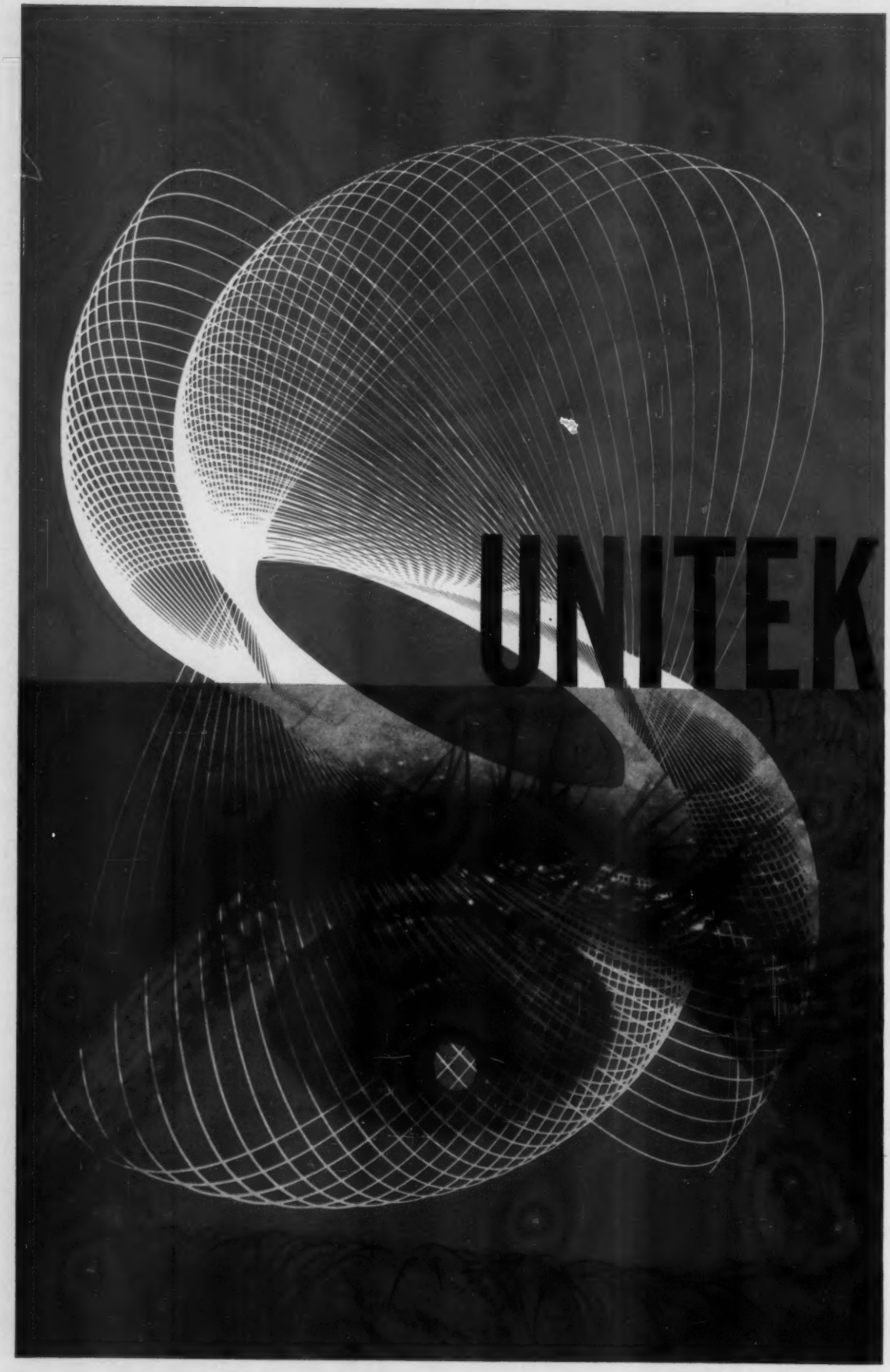
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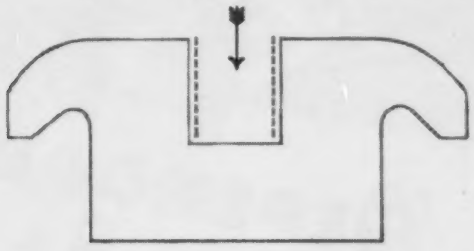

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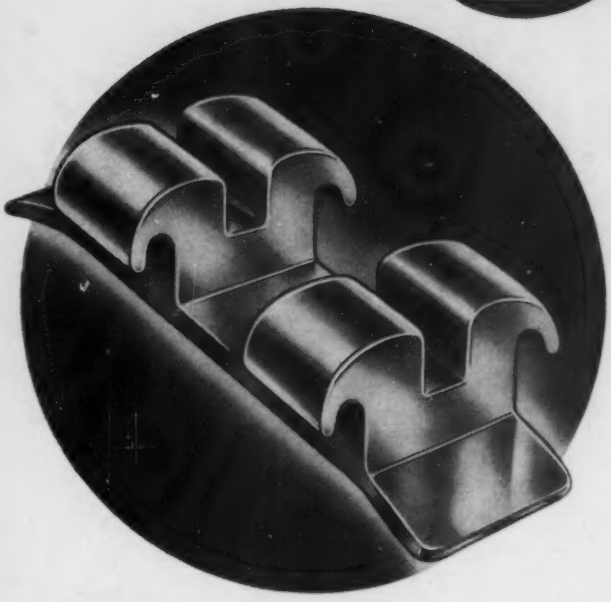

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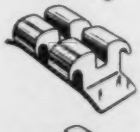

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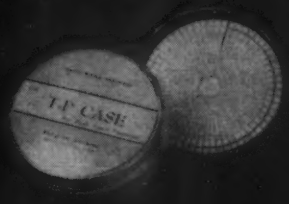

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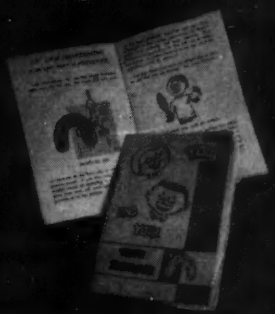

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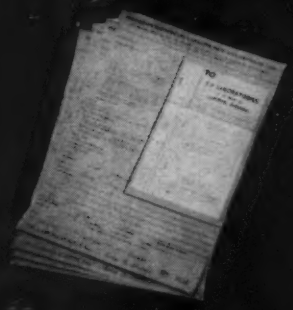

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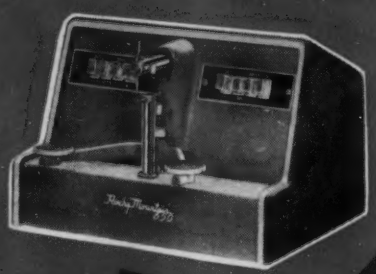

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Original Articles

PRELIMINARY MACROSCOPIC OBSERVATIONS CONCERNING THE POTENTIALITY OF SUPRA-ALVEOLAR COLLAGENOUS FIBERS IN ORTHODONTICS

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IT IS possible for one to think of the development and maintenance of the proper alignment of the dentition as involving three groups of factors. The first of these involves the process of bone resorption and bone rebuilding, that is, the reactions of the bone and periodontal membrane to pressures and tensions. This has been known for some time.

The second is concerned with the muscle balance. Teeth are held in position by balanced pressures of the muscles of the lips, cheeks, and tongue. The related literature has stressed that one of the limitations of orthodontic tooth movement—namely, expansion—is very limited since we cannot alter the muscle tissue permanently. In other words, we accept the arch width present and fit the teeth to that arch width because experience has shown that, if we do not do this, the muscles of the face and lips will do it for us.

The third factor could concern the connective tissue superior to the alveolar bone, that is, the transseptal and gingival fibers. For some reason, this has not

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been given serious consideration. Hence, it was our intention to find out experimentally just what influence, if any, these supra-alveolar fibers have on tooth movement and retention.

Since the macroscopic observations on some of the animals have been completed, some evidence in this connection can be presented. The histologic findings on these animals and the observations on additional animals will be reported later.

LITERATURE

In the literature review given in an earlier paper,[1] it was shown that several authors have speculated on the possible influence of the supra-alveolar connective tissue fibers in orthodontic tooth movement and retention, but there is very little literature in which the authors attempted to secure experimental evidence. Waldron,[2] did note in clinical cases that when molar teeth were moved distally the anterior teeth also moved in the same direction. Apparently, he felt that muscular action was very important in this connection. Skillen[3] felt that the periodontal membrane and bone in the socket were easily repaired, but that the gingivae did not heal as easily. Earlier, Urban, Beisler, and Skillen[4] cut between the teeth. When the animal was sacrificed thirty minutes later, they found that the roots were closer together and the crowns farther apart. Talbot,[5] in 1896, removed the alvolar process between the teeth prior to moving the teeth orthodontically, but there was no good control for comparison. Skogsburg,[6, 7] in two reports, described essentially the same procedure. In one case of special interest a rotated tooth relapsed but, with the septotomy after a second rotation, no relapse occurred.

MATERIALS AND METHODS

Since the work being presented here was the initial study in our laboratory, it was necessary first to develop the proper procedures and techniques. The first experiment used rhesus monkeys secured from a commercial source. Three animals had extractions and gingivectomies involving various segments of the oral cavity. The teeth adjacent to the extraction areas were banded and approximated by tightening a coiled spring every two weeks. When the teeth were approximated, the animals were sacrificed.

From the experience gathered, the following procedure was adopted:

The *Cynomolgus* monkey with permanent incisors was selected as the experimental animal. These monkeys were secured from a source ensuring good health. Each morning each animal received ½ pound of the wet Okatie diet, secured from the Marbut Milling Company, Augusta, Georgia. For each 25 pounds of the diet, there were added 4 grams ascorbic acid, 2 grams dicalcium phosphate, and 2 grams ferrous sulfate. Each afternoon the animals received one-half onion, ten peanuts, and two slices of whole wheat bread. Every other day a banana or an orange was given. The animals were allowed in the runways connected with the cages for daily exercise.

After intraperitoneal Nembutal anesthesia (usually 1.25 c.c. of a 50 mg. per cubic centimeter solution), a central or lateral incisor was extracted from

the maxillary and mandibular arches in opposite quadrants. The extraction cavity was filled with Novocell. Bands with edgewise brackets attached were placed on the teeth adjoining the extraction area. A section of 0.018 inch round wire was contoured to the brackets over the extraction area. A very short section of coil spring was placed over the sectional arch. The ends of the coil were tied so as to place an activating force on the spring and thus bring about an approximation of the banded teeth. The spring was tightened at three-week intervals. Adjustments were made on the sectional arch to shorten its length as the teeth moved together. No attempt was made to keep the teeth from tipping. In the first experiments, approximation was considered complete when the bands were in contact. In later experiments the bands were removed and the distogingival tooth surfaces were grooved to hold a ligature wire. The ligature wire was tightened at three-week intervals until the teeth were brought into absolute contact.

The control animals were held with the teeth in contact approximately three weeks and then were released from any orthodontic forces.

The experimental animals were given a complete and thorough gingivectomy around the approximated teeth as soon as contact was secured. After allowing three weeks for the gingivectomy to heal, we removed the ligature wire.

After the teeth were released from orthodontic forces, both the control and experimental animals were observed periodically for a period of six to eighteen weeks. They were then sacrificed, and the jaws were preserved for future histologic sectioning.

RESULTS

The preliminary work with rhesus monkeys revealed that this species has teeth with short crowns which make it difficult to band the teeth without traumatizing the gingiva. Rapid attrition of the crowns, especially the incisors, was an additional hindrance. Only those animals with newly erupted anterior teeth were considered at all satisfactory. The *Cynomolgus* monkey, however, has large anterior teeth, which makes banding in this region easy. Even in this species, banding the posterior teeth was unsatisfactory, since the working space was insufficient and it was difficult to secure monkeys with sufficient age to have permanent posterior teeth.

Since it was necessary to anesthetize the animals for each procedure, there seemed to be some tendency for the animals to develop a resistance or hypersensitivity to the Nembutal. Some anesthetic deaths occurred. Although it was found the animals could be maintained in good health throughout the experiments, the relatively long procedures involved did make it very important to secure vigorous animals and to give them the best of care.

It was found that the adjacent teeth could be moved into the extraction space in 4 to 6 months (Table I) without causing excessive tooth mobility. In the rhesus experiments, it was felt that the reactivation of the orthodontic force every two weeks definitely caused excessive looseness of the teeth, whereas the three-week intervals in the *Cynomolgus* animals did not.

TABLE I. THE INFLUENCE OF GINGIVECTOMY ON RELAPSE AFTER ORTHODONTIC TOOTH MOVEMENT

ANIMAL NO.	ARCH	TIME FOR APPROXIMATION OF TEETH (WEEKS)	TERMINAL OBSERVATION TIME (WEEKS)	PER CENT DRIFT		COMPLICATIONS
				EXPERIMENTAL	CONTROL	
8	Upper	17	17	0		- - - - - - - -
8	Lower	17	17	0		- - - - - - - -
9	Upper	15	17	10		- - - - - - - -
9	Lower	15	17	14		Teeth mobile
12	Upper	26	19		31	Band caused partial gingivectomy
12	Lower	21	24		82	Lost ligature
13	Upper	25	17		28	Canine eruption
13	Lower	18	24		37	Poor tissue
14	Upper	16½	21	8		Teeth mobile
14	Lower	16½	21	42		Teeth mobile
15	Upper	24	26	0		- - - - - - - -
15	Lower	24	26	13		Teeth mobile
			Average	10%	44%	

Healing after the gingivectomies was complete and quite rapid. This usually was accomplished in three weeks. In animals with good fibrous gingiva, healing occurred without exposing any additional clinical crown (Figs. 1 to 6). In one instance there seemed to be some original excessive clinical crown length (Figs. 10 to 12). This healed, exposing still more crown (Figs. 13 and 14).

If all the findings were described in detail, complete case histories of all the animals would have to be given. Illustrations of one typical experimental case (Figs. 1 to 6) and one control case (Figs. 7 to 9) are presented. The essential findings in all six *Cynomolgus* animals, whose study has included an adequate terminal observation period up to the present time, are summarized in Table I. The average difference in relapse of 10 per cent for the experimental animals in comparison with 44 per cent for the controls would indicate that the gingivectomies were definitely a factor in the maintenance of the original orthodontic tooth movement. However, it is also obvious that other factors are involved. Table I indicates that the most relapse in the controls (animal 12, lower arch) and its complete absence in the experimental animals (Figs. 1 to 6) were found in the absence of serious complicating factors.

Some of the complications arose from poor oral hygiene. Excessive accumulations of materia alba and superficial gingivitis were almost constant. This seemed to have little, if any, effect on the experimental results. However, other differences in the gingival tissues did seem to have some influence. Before and after the active orthodontic tooth movement, some teeth in some animals showed excessive looseness. The gingiva in some animals seemed slightly edematous in texture, while in others it was more fibrous. The seeming loss of some alveolar bone before any experimentation was mentioned previously. It was noted that the gingiva tended to heal better after the gingivectomies in some animals than in others. A possible correlation of these conditions with diet and general health could not be ruled out, but no obvious relationship

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 1.—Animal 15. Upper arch before extraction and banding. Some marginal gingivitis is evident.

Fig. 2.—Animal 15. Upper arch immediately after extraction of the left central incisor and the banding of the right central and left lateral incisors.

Fig. 3.—Animal 15. Upper arch twenty-four weeks after the extraction and banding. During this interval the right central and left lateral incisors had been brought into absolute contact. The teeth were firm in their sockets. Some marginal gingivitis was present.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 4.—Animal 15. Upper arch. Photograph taken same day as Fig. 3, after the gingivectomy.

Fig. 5.—Animal 15. Upper arch three weeks after Figs. 3 and 4. During this three-week interval the gingiva was essentially completely healed. The healing occurred without exposing additional clinical crown. Some marginal gingivitis can be seen. At this time the ligature wire was removed.

Fig. 6.—Animal 15. Upper arch twenty-one weeks after Fig. 5. The right central and left lateral incisors still are in good interproximal contact. The gingiva appears healthy.

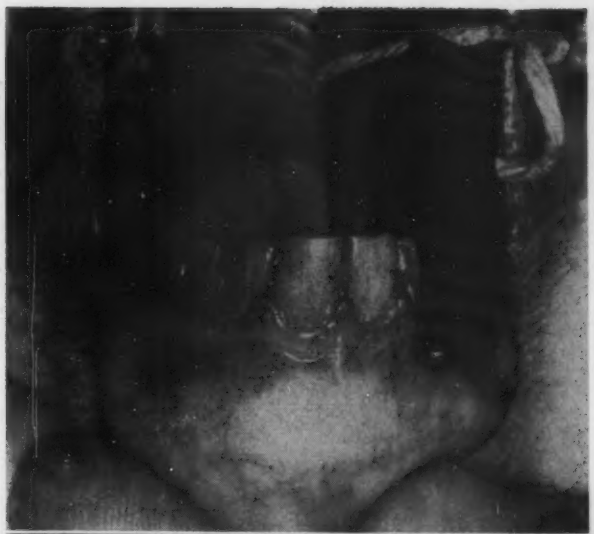

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 7.—Animal 12. Lower arch. Photograph taken before extraction and banding.

Fig. 8.—Animal 12. Lower arch. Twenty-one weeks after Fig. 7. During the last six weeks of this time the bands on the two teeth had been approximated. At some time during the last three-week interval between observations one band was lost. It can be seen that some relapse already has occurred.

Fig. 9.—Animal 12. Lower arch. Twenty-four weeks after Fig. 8. During this time the approximated left central and right lateral incisors have constantly drifted apart. At least 82 per cent of the space originally occupied by the right lateral incisor (Fig. 7) has been reached.

Fig. 10.

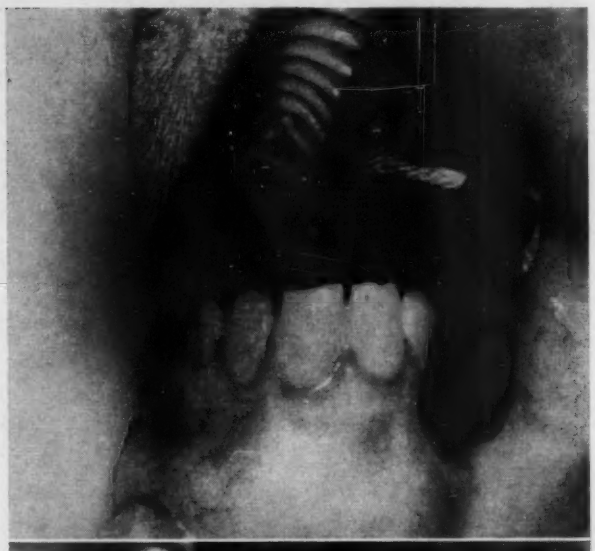

Fig. 11.

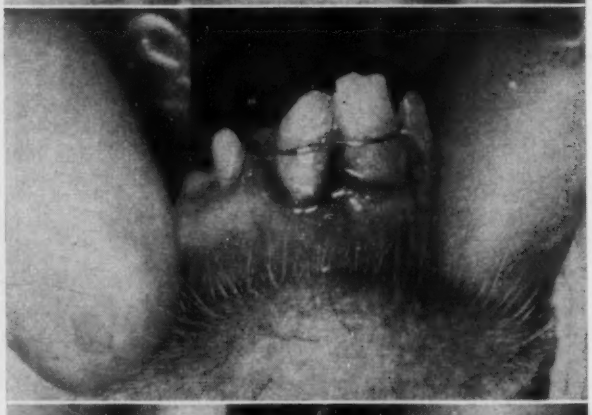

Fig. 12.

Fig. 10.—Animal 15. Lower arch before extraction and banding. There is poor texture to the gingiva, and the crowns show some excessive length.

Fig. 11.—Animal 15. Lower arch after the right central incisor had been extracted and the right lateral and left central incisors approximated. The excessive crown length seems to be more evident.

Fig. 12.—Animal 15. Lower arch after gingivectomy. Photograph taken same day as Fig. 11. The excessive crown, which is indicative of alveolar bone loss, is evident.

was noted. A band on a short-crown tooth forcing the band into the gingival tissue certainly would sever the superficial gingival fibers (Table I, animal 12, upper). It is equally obvious that the gingival and transseptal fibers between the canine and lateral incisor could not remain intact during the eruption of

Fig. 13.

Fig. 14.

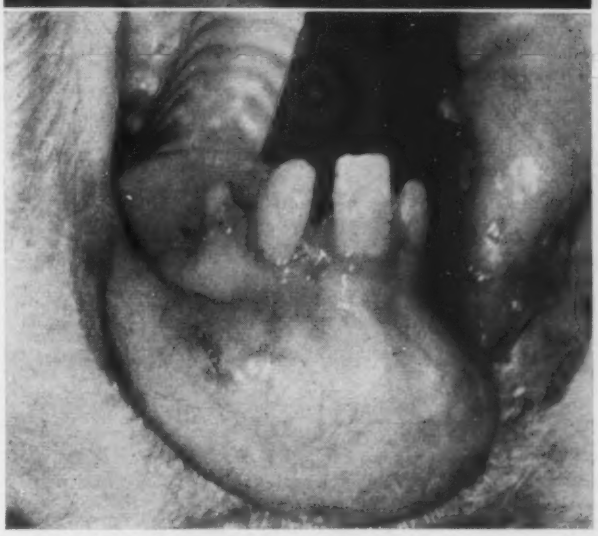

Fig. 13.—Animal 15. Lower arch after gingivectomy healing. Photograph taken three weeks after Fig. 12. The excessive clinical crown is evident.

Fig. 14.—Animal 15. Lower arch fourteen weeks after the gingivectomy. The excessive clinical crown persisted. In spite of the gingivectomy, the approximated teeth have shown some drifting apart.

some ½ inch of canine crown (Figs. 15 to 17). It was evident, however, that age was not an overriding factor. Both young (Figs. 1 to 6) and old (animals 8 and 9, Table I, Figs. 18 and 19) animals exhibited good retention after the gingivectomies.

Fig. 15.

Fig. 16.

Fig. 17.

Fig. 15.—Animal 13. Upper arch at the time experimentation was initiated. The right central incisor was extracted, and the adjacent left central and right lateral incisors were banded for approximation. Note especially the right canine crown just emerging through the gingiva in its eruption.

Fig. 16.—Animal 13. Upper arch twenty-five weeks after Fig. 15. The left central and right lateral incisors had been almost approximated with bands followed by ligature wire. Sometime since the last observation period, during the immediate preceding three weeks, the ligature wire was lost. Since the teeth were not completely approximated, little relapse had occurred. Note the canine eruption in comparison with Fig. 15.

Fig. 17.—Animal 13. Upper arch seventeen weeks after Fig. 16. It was estimated that no more than 28 per cent relapse had occurred, when compared with Fig. 16. Note the extent of canine eruption as compared with Figs. 15 and 16.

DISCUSSION

In the evaluation of the results, several factors can be considered. In most clinical cases, premolars are extracted and the adjacent teeth are moved into the extraction area. The same procedure in these experiments not only would have more nearly duplicated the clinical procedure, but it would have made it possible to use one side of each arch as the experimental and the other as the

Fig. 18.

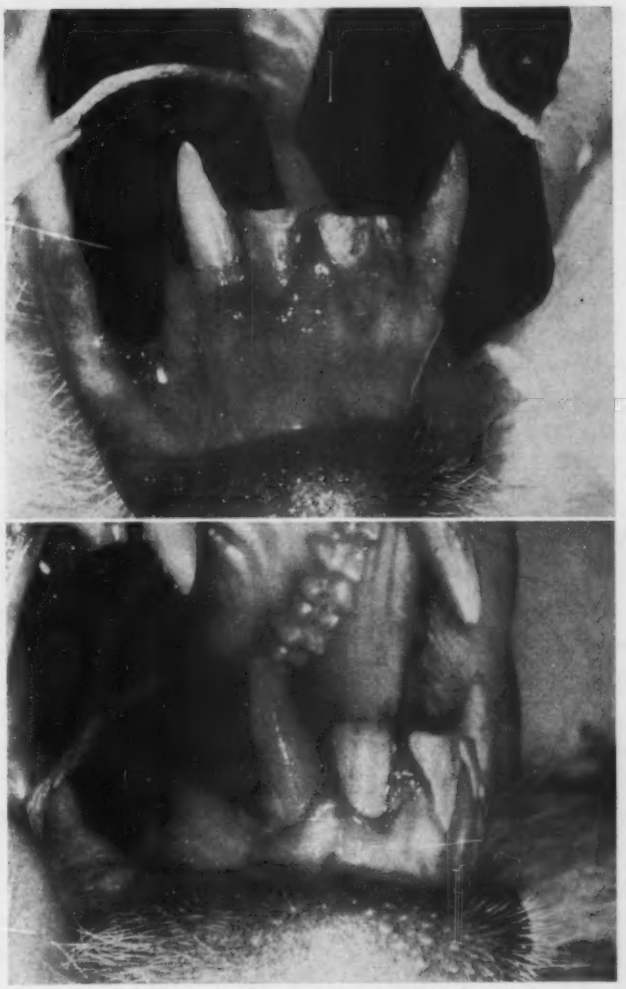

Fig. 19.

Fig. 18.—Animal 8. Lower arch. The right lateral incisor had been extracted and the right central incisor moved toward the canine. When the bands came into contact approximation was considered complete, and a gingivectomy was performed. This figure shows the healing two weeks later after the bands were removed. Note the very long canines indicating a very old animal.

Fig. 19.—Animal 8. Lower arch twelve weeks after Fig. 18. Although there is some gingival hyperplasia, there has been minimal drifting apart of the right central incisor and right canine.

control. Some of the factors precluding this were mentioned in the results. Since it was not possible to have bilateral experiments in the same arch in the same animal, it was necessary to choose between comparing upper and lower

arches in the same animal for the experimental and the control and comparing both arches in different animals. We chose the latter, since whatever differences exist in various animals should show a random distribution in the experimental and the control groups. Experiments including both upper and lower arches were included in both experimental and control animals.

It is also realized that the tipping action could either increase or decrease the tendency for relapse. Excessive tipping would increase this tendency for relapse, whereas minor tipping would decrease this tendency. Again, however, this variation should be equally distributed between the experimental and the control. One could well feel that more clearly defined results could be obtained if animals with ideal oral conditions were used. It is also possible, however, that we may learn more by a study that includes such complications as poor gingival tone, adjacent erupting teeth, and external trauma (catching in cage). If the rational explanation of the results is compatible with the concept of the action of the supra-alveolar connective tissue fibers, the evidence would be strengthened. This, we feel, is true with the results obtained up to the present time.

The basic concept as visualized by the group involved in this investigation is that bone is destroyed and produced rather easily, but that the collagenous connective tissue fibers are relatively inert. Actually, there is some evidence in this connection.[8, 9] If this is true, then these fibers would tend to maintain the original position of the tooth when the fibers were formed and to resist any change. Without any complicating factors or gingivectomy, tension or pressures would be placed on these fibers by the tooth movement. Uncontrolled, these fibers would tend to return to their original conformation and carry with them the teeth which they surround and to which they are attached, thus causing relapse. A gingivectomy might release this tension, and then new fibers would form without tension, thus mitigating the tendency to relapse. A marginal gingivitis, such as that found almost constantly, would have little, if any, influence since it probably would not involve the deeper transseptal fibers. Poor gingival tone and excessive tooth mobility are an expression of some deep-seated inflammatory reaction sufficient to cause collagen destruction. In this instance, relapse would be lessened in the control animals, but retention would not be good in the experimental animals. In the case which involved the eruption of the canine, it is obvious that the supra-alveolar collagenous fibers, and especially the transseptal fibers, could not have remained attached to this tooth. Here there was produced the same condition as is seen in a gingivectomy; hence, little relapse would be expected.

Likewise, it is felt that the results in the literature most closely related to these experiments could be explained on the same basis. An explanation for Waldron's observation in which a molar tooth being moved distally caused other teeth to move could be that tension was put on the supra-alveolar fibers which, in turn, put tension on the adjacent teeth. In the case observed by Skillen and his co-workers in which there was a change in position of the parts of the tooth after cutting with a separator, tension could have been released by

cutting the supra-alveolar fibers. Since the septotomy used by Talbot and Skogsburg cut both bone and supra-alveolar fibers, the important item may have been severance of the latter.

SUMMARY

1. Some evidence has been presented indicating that the disruption of the collagenous connective tissue fibers above the alveolar bone aids retention after orthodontic tooth movement.

2. The evidence presented also indicated that some complicating factors could alter this result.

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6314 BROOKSIDE PLAZA

GROWTH OF THE HUMAN CRANIAL BASE

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INTRODUCTION

THE development and growth of the face are intimately related to those of the cranial base. Few detailed studies have been made of the growth of the cranial base, and fewer still have been made of the growth of its individual components, of their changing relationships to each other, or of the actual sites and times at which growth occurs. Most such studies deal with the cranial base as a whole and omit these details. Yet they are important as never before in view of the widespread use of radiographic cephalometry. This procedure requires a stable plane in the base of the skull for superimposition of successive radiographs of the growing skull. Hitherto, the nasion-sella line has been most favored for this purpose, but it has certain theoretical disadvantages, as will be shown subsequently. De Coster[6, 7] has proposed another possible base line, the cribriform plane, for which he claims certain advantages over the nasion-sella line, in particular the fact that it does not increase in size after the age of 7 years. Others[10, 13] have supported these claims. It is the purpose of this study to examine the growth of the cranial base in detail with special reference to these claims.

DEVELOPMENTAL ANATOMY

Fig. 1 shows diagrams of paramedian sagittal sections through the cranial bases of a stillborn infant, a child of 6 to 8 months, and an adult. In the young fetus the entire cranial base from basion to front of nasal septum (or to nasion) is a continuous sheet of cartilage. In this cartilage, ossification centers for basioccipital, basisphenoid, and presphenoid bones appear in the first half of fetal life. Fusion takes place between the presphenoid and basisphenoid centers shortly before birth (although cartilage at this site persists in the midline for some time after this). At birth, therefore, the midline sites of growth in this area are in the region between the basioccipital and basisphenoid bones and in that between presphenoid and frontal bones.

During the first year after birth a mesethmoid center appears in the cartilage of the nasal septum in the cribriform plate region, and this extends into and ossifies the crista galli and posterior half of the nasal septum. It also spreads across the cribriform plate to unite the nasal septum with the ethmoidal labyrinth. Growth in length of the anterior cranial fossa can take place both anterior and posterior to the mesethmoid center as long as cartilage persists between this center and the frontal and sphenoid bones, respectively.

From the Anatomy School, University of Cambridge.

It is difficult to discover from textbooks on anatomy when this mesethmoid center unites with the sphenoid bone. Brash,[2] in Cunningham's *Textbook of Anatomy,* states that cartilage is present in this region up to the age of 25 years, while Bryce,[12] in Quain's *Anatomy,* states that the sphenoidal conchae are united to the ethmoid at 4 years and to the sphenoid itself between 9 and 12 years of age. Other authors (Johnson in Gray's *Anatomy,* Augier in Poirier and Charpy's *Traité d'Anatomie Humaine*) make no statement on this point.

Fig. 1.—Paramedian sagittal sections through the cranial bases of a stillborn infant (*A*), a child of 6 to 8 months (*B*), and an adult (*C*). Bone is shown black or cross-hatched, and cartilage stippled. *O*, Basi-occipital; *PS*, presphenoid; *S*, sphenoid; *V*, vomer.

There is also uncertainty as to how long cartilage persists between the mesethmoid center and the frontal bone and as to when bony union takes place between the central and lateral parts of the ethmoid across the cribriform plate, estimates varying from the second[2] to the sixth[12] year.

To summarize, in a young child there are four sites of growth in the cranial base between nasion and basion: (1) spheno-occipital synchondrosis, (2) spheno-mesethmoid synchondrosis, (3) cartilage between mesethmoid and frontal bones, and (4) in the frontal bone itself, which becomes much thicker during childhood, in association with enlargement of the frontal air sinuses. The problem is to determine the ages at which active growth is taking place at sites 2, 3, and 4 (growth at site 1 is known to continue to the age of 20 to 25).

MATERIAL AND METHODS

Observations and measurements have been made on a collection of dried juvenile and adult skulls in the museum of the Anatomy School, University of Cambridge. These skulls form a heterogeneous series, being in many cases of uncertain race and sex, but the collection is one of the largest of its type. Because of the nature of the material, small changes in proportion during growth cannot be detected, but the series suffices to give a reasonable over-all picture of the growth of the cranial base. No account has been taken of sex differences, because of the difficulty of determining the sex of juvenile skulls.

The skulls were arbitrarily grouped by the state of dentition into the groups shown in Table I, following the method of Zuckerman.[15]

TABLE I

GROUP	DENTITION	NUMBER	APPROXIMATE AGE (YEARS)
I	Neonatal	11	0
II	Deciduous teeth erupting	8	½-2
III	Full deciduous dentition	11	2-6
IV	Full deciduous dentition plus permanent M1.	7	6-8
V	Other permanent teeth (except M3) erupting	4	8-14
VI	All permanent teeth erupted except M3.	13	14-20
VII	All teeth erupted; spheno-occipital suture fused	12	Over 20

Measurements were made with a pair of dividers and a ruler, to the nearest half-millimeter, of the following dimensions:

Pituitary point—nasion
Pituitary point—foramen caecum
Pituitary point—basion
Foramen caecum—nasion
Length of cribriform plate (intracranial surface)
Width of cribriform plate (intracranial surface)
Width of interorbital septum

The pituitary point (of Cameron[4, 5]) is the midline point on the anterior margin of the pituitary fossa.

Measurements at the foramen caecum were taken from its anterior margin.

The width of the cribriform plate was measured in its central part.

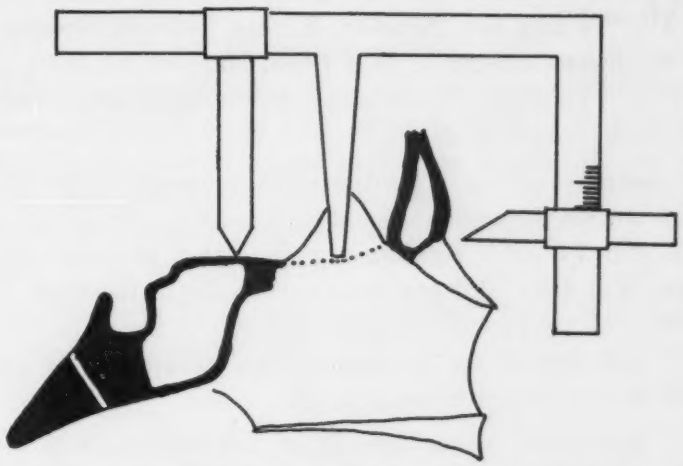

Fig. 2.—Diagram of instrument used to measure height of nasion in relation to plane of jugum sphenoidale and cribriform plane. Shown in position of use.

In addition to these measurements, the height of nasion relative to the plane of the cribriform plate and jugum sphenoidale was measured by means of an instrument made especially for the purpose (Fig. 2). One arm of this was placed on the center of the jugum sphenoidale, and the second on the center of the cribriform plate to one side of the crista galli. The sliding arm was then adjusted to touch nasion, and the height of nasion was read off the scale.

FINDINGS

The measurements taken are summarized in Table II, which gives the mean of measurements for each age group.

TABLE II

Group	I	II	III	IV	V	VI	VII
Age (years)	0	½-2	2-6	6-8	8-14	14-20	Adult
Number of skulls	11	8	11	7	4	13	12
Pituitary point—nasion (mm.)	38.1	43.9	49.0	53.9	54.0	55.2	59.7
Pituitary point—foramen caecum (mm.)	34.2	39.6	43.0	45.9	45.4	45.7	46.3
Pituitary point—basion (mm.)	22.3	30.8	34.1	37.0	40.4	41.1	46.3
Foramen caecum—nasion (mm.)	3.0	4.3	6.9	7.9	9.6	11.9	14.9
Cribriform plate length (mm.)	20.8	24.5	24.3	26.1	27.0	25.6	25.2
Cribriform plate width (mm.)	11.0	12.6	10.4	11.5	9.1	9.0	9.8
Width of interorbital septum (mm.)	11.1	16.0	17.6	19.9	20.1	22.3	26.8

Anteroposterior Growth of Cranial Base.—

Pituitary point—nasion: This diameter increases throughout the growth period. There is no statistically significant difference between the mean

measurements for Groups IV, V, and VI, but the difference (5.8 mm.) between the mean measurements for Groups IV and VII is significant ($p < 2$ per cent on *t*-testing). This dimension, therefore, continues to grow after eruption of the first permanent molar teeth until adult life.

Pituitary point—foramen caecum: This dimension increases steadily from Groups I to IV. It does not, however, increase between Groups IV and VII (there is no significant difference, in a *t*-test, between the mean measurements for Groups IV, V, VI, and VII). Growth here, therefore, ceases after eruption of the first permanent molar teeth.

Foramen caecum—nasion: This dimension, representing the thickness of the frontal bone, increases throughout the growth period. The mean measurements of Groups IV and VI differ significantly ($p < 0.1$ per cent) as do those of Groups VI and VII ($p < 1.0$ per cent). Increase in thickness of the frontal bone, therefore, entirely accounts for the increase in the pituitary point-nasion diameter after eruption of the permanent first molars. It is associated with increase in size of the frontal sinus.

Length of cribriform plate: Growth of this dimension is the increase in anteroposterior extent of the intracranial surface of the ethmoid. It increases by only 0.7 mm. between Groups II and VII. There is no statistically significant difference between the mean measurements of Groups II, III, IV, V, VI, and VII. The cribriform plate, therefore, has completed its growth in length by the early age of 2 years.

Pituitary point—basion: This dimension increases steadily throughout the period of growth, as is well known, increasing by 9.3 mm. between Groups IV and VII.

The above findings indicate that growth at the spheno-occipital synchondrosis occurs throughout childhood and adolescence; that growth at the spheno-mesethmoid synchondrosis is active up to the age of about 7 years, but ceases completely thereafter; that growth in length of the cribriform plate, and between it and the frontal bone, is complete by the age of 2 years; and that the thickness of the frontal bone and size of the frontal sinus increase throughout the growth period.

Growth in Width of Interorbital Region.—

Cribriform plate width: This increase by 1.6 mm. between Groups I and II, but thereafter it appears to diminish. In the adult it is actually 1 mm. less than in the newborn child. Examination of the intracranial surfaces showed that bony union across the central part of the plate was present in all skulls of Group II, some of which were less than 1 year old. Thus, unless a synchondrosis persists between the lateral margin of the cribriform plate and the ethmoidal labyrinth, under cover of the orbital plate of the frontal bone where it cannot be seen (and this is not so in two skulls in which this region was visible), it can be said that the nasal septum and ethmoidal labyrinths are united by bone well

before the age of 2 years (possibly before 1 year of age). This is earlier than is usually described, but it is not surprising in view of the fact that the two halves of the frontal bone are firmly united by the end of the first year, thus preventing further separation of the orbital plates of the frontal bone. Thus, the cribriform plate grows in width only in the first two years of life. Subsequent apparent diminution in width is due to encroachment of the orbital plates of the frontal bone upon its intracranial surface.

Width of interorbital septum: This increases steadily from birth to adult life, the increment exceeding 10 mm. between Groups II and VII. All the growth of this dimension over the age of 2 years must be due to an increase in thickness of the ethmoidal labyrinth associated with increasing pneumatization of the ethmoidal air sinuses. It cannot be due to any increase in width of the uppermost part of the nasal cavity.

Height of Nasion in Relation to Cribriform Plane.—The mean values for these measurements are given in Table III.

TABLE III

Group	I	II	III	IV	V	VI	VII
Height of nasion above cribriform plane (mm.)	2.1	5.2	3.6	5.8	7.1	4.7	8.7

Any changes in the relative position of nasion during growth are obscured in this series by the great variation between individual skulls. There is no statistically significant difference between the mean measurements of Groups II to VI. If, however, Groups IV, V, and VI are combined (mean 5.8 mm.) the difference between this value and that for Group VII is significant. This may indicate that nasion moves up relative to the cribriform plane between the ages of 7 and 25 years, but this cannot be regarded as a firm conclusion, although it seems a likely one in view of the findings of Keith and Campion.[9]

DISCUSSION

Theoretical Implications of Findings.—It is generally accepted that cranial growth is largely dependent on the growth of the brain and, therefore, conforms to the neural pattern of growth (very rapid growth in the first two to three years, falling off rapidly and almost finished by the age of 7 to 8 years). Facial growth, however, is independent of brain growth and conforms to the general skeletal growth pattern shown by most bones and muscles, which grow fairly evenly from birth to adult life with a characteristic spurt at adolescence. The cranial base, being the junctional region between cranium and face, might be expected to show a growth rate intermediate between the neural and general skeletal rates.

This is true of the cranial base as a whole. However, analysis shows that individual parts of the base have either the neural or the general skeletal growth rate, but not an intermediate one. Thus, between nasion and the posterior margin of the foramen magnum there are four regions with different growth

rates. The first, from nasion to foramen caecum, and the third, from sella turcica to basion, have the general skeletal growth rate, while the second, from foramen caecum to sella, and the fourth, from the anterior margin to the posterior margin of the foramen magnum, have the neural growth rate. The synchondroses around the foramen magnum have been obliterated by the time that the first permanent molar has erupted, and thenceforth the foramen does not increase in size according to Zuckerman[15] and to my own unpublished observations.

The part of the cranial base from foramen caecum to sella is so intimately related to the frontal lobes of the brain that it would be surprising if it did not have the same growth rate as the brain itself. In fact, it does, as is shown above. This correspondence is equally true of the prenatal period.[8] The very early completion of growth by the cribriform plate suggests that the olfactory bulbs may also cease growth correspondingly early.

Growth of the anterior part of the cranial base is still necessary after the brain has virtually ceased to grow, at 7 to 8 years, in order to allow for facial growth, the greatest amount of which is still to come. This growth takes place almost entirely by increased pneumatization of the frontal and ethmoid bones. It is to be expected, therefore, that the degree of development of the supraorbital region and of the interorbital septum will be closely related to the size of the jaws and masticatory muscles and that these regions will be largest in males and in primitive races. This, in fact, appears to be so.

Practical Significance.—The observation that the cribriform plane does not grow after the age of 7 years was first made, as mentioned earlier by de Coster[6, 7] following a radiographic investigation. Maronneaud[10] and Scott[13] have supported these claims. None of these workers, however, has published sufficient measurements to confirm them. Björk[1] has found no growth in this region after the age of 12 years. In the present article de Coster's conclusions are confirmed, for the first time, by actual measurements.

Since the cribriform plane (the plane of cribriform plate and jugum sphenoidale) is immutable after eruption of the first permanent molars, it would form an excellent base line (or line of reference) for the study of facial growth during eruption of the permanent dentition, and one theoretically better than the nasion-sella line normally used. Furthermore, Moss and Greenberg[11] have demonstrated the constancy of the relationship between the plane of the cribriform plate and that of the palate throughout postnatal growth.

In practice, superimposition of radiographs on a nasion-sella line, the method pioneered by Brodie[3] has given very satisfactory results. Such a line, however, is open to theoretical disadvantages. The chief of these is the fact that nasion moves upward relative to the cribriform plane (and therefore to the face as a whole) during growth. This was first observed by Keith and Campion.[9] The upward movement is due to the overlapping form of the frontonasal suture and to the accretionary nature of growth in this region.[14] Keith and Campion[9] observed that although this upward movement is the rule for modern European

races, in ancient Europeans and in primitive races (unspecified) nasion may remain stationary or even move slightly downward. This finding may account for the rather equivocal findings in the present series of skulls, which includes a number of non-European specimens.

It is probable that the pituitary fossa and point (tuberculum sellae) also move upward during growth when the sphenoidal air sinuses enlarge. This appeared to be the case in the present series of skulls. Björk[1] observed that tuberculum sellae rises during growth relative to the nasion-sella line (line to the center of sella), although he denied that sella itself altered its position after the age of 12 years, while allowing that it might have risen at an earlier age. Recent work on postnatal changes in angulation of the cranial base during growth is also significant. Zuckerman[15] finds a decrease in the sphenoethmoidal angle (defined as the angle nasion-pituitary point-basion) throughout the growth period. Moss and Greenberg,[11] however, find that the cribriform angle (angle between planes of cribriform plate and clivus) remains constant throughout postnatal growth. Both these observations are made on cross-sectional data (different persons at different ages) and cannot be considered as true of individuals until confirmed by a longitudinal series. The difference between them is striking, nevertheless, and is perhaps due to the differences in the points employed for measurement. Decrease in the sphenoethmoidal angle may be due to changes in relative positions of nasion and tuberculum sellae associated with growth of the frontal and sphenoidal air sinuses, while the cribriform plane remains in a constant relation to the clivus. It is not yet certain that any true flexion takes place in the sphenoidal region postnatally (in contrast to an apparent flexion due to changes in thickness of the individual bones of the cranial base).

It is quite likely that the satisfactory results obtained when using the nasion-sella line for superimposition are due to the fact that both nasion and sella rise in relation to the cribriform plane (and therefore to the face), but that the line remains relatively parallel to the cribriform plane since both its ends are raised by about the same amount. If this is so, studies of facial growth which employ this base line will give a slightly excessive estimate of the vertical growth of the face in comparison with forward growth. Provided that this possibility is realized, there is little theoretical objection to the employment of this base line.

SUMMARY

1. The growth of the anterior part of the cranial base was studied by measurements on a series of immature skulls. The observation by de Coster that the distance from sella turcica to foramen caecum does not increase after eruption of the first permanent molar teeth is confirmed. The times at which various growth sites in the cranial base are active are described. The cribriform plate completes its growth as early as the end of the second year.

2. Individual segments of the cranial base follow either the neural or the general skeletal pattern of growth, but not an intermediate one.

3. The merits of the cribriform plane and the nasion-sella line as base lines for serial radiographic studies of the developing skull are discussed.

I wish to express my gratitude to Professor J. D. Boyd for granting facilities and for reading through the manuscript and making helpful criticisms and suggestions; to Dr. J. D. Scott for helpful suggestions and for allowing me to use his measurements of juvenile skulls, which have not been incorporated into this paper, but which help to confirm the present findings; and to Mr. K. W. Thurley for making the instrument shown in Fig. 2.

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THE ANALYSIS OF FACIAL GROWTH

I. The Anteroposterior and Vertical Dimensions

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INTRODUCTION

THE essence of orthodontic diagnosis is the analysis of the site, extent, and nature of the deformities with which the various forms of malocclusion are associated. The introduction of cephalograms has enabled the orthodontist to visualize the craniofacial skeletal structures and has presented him with an indispensable diagnostic instrument. Much has been written on the use of various planes, angles, and so-called "fixed points" in cephalometric analysis. There is, however, a danger that diagnosis may become based on these somewhat artificial constructions rather than on a careful and detailed analysis of the skeletal structures themselves. In this article is described a simple framework of planes within which analysis of the skeletal morphology, as shown in lateral cephalograms, can be carried out. A later article will propose similar use of frontal cephalograms.

CONSTRUCTION OF THE LATERAL FACIAL RECTANGLE

For the analysis of craniofacial morphology and growth as seen in lateral cephalograms, a rectangle is constructed as shown in Figs. 1 and 2.

The upper side of the facial rectangle is the familiar nasion-sella line (N-S) extending from nasion to the center of the pituitary fossa.[1]

From nasion and from the pituitary midpoint two lines are drawn parallel to one another and at right angles to the N-S line; these are the anterior and posterior facial planes.

The lower side of the facial rectangle is drawn parallel to the N-S line and through the lower border of the chin (gnathion) and is called the gnathial plane.

Three other standard planes are added: (1) the palatal plane which is drawn between the anterior nasal spine and the posterior edge of the hard palate and extended backward to meet (2) the mandibular plane at the palato-mandibular angle. The third accessory plane is the B-S line from the Bolton point to the mid-pituitary point (Figs. 1 and 2). It will be seen that the palatal plane divides the facial rectangle into (1) an upper part situated between the

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hard palate and the cranial base, which contains the upper facial skeleton and (2) a lower part between the palatal and gnathial planes, which contains the lower facial skeleton.

Fig. 1.—Lateral cephalogram showing the lateral facial rectangle.

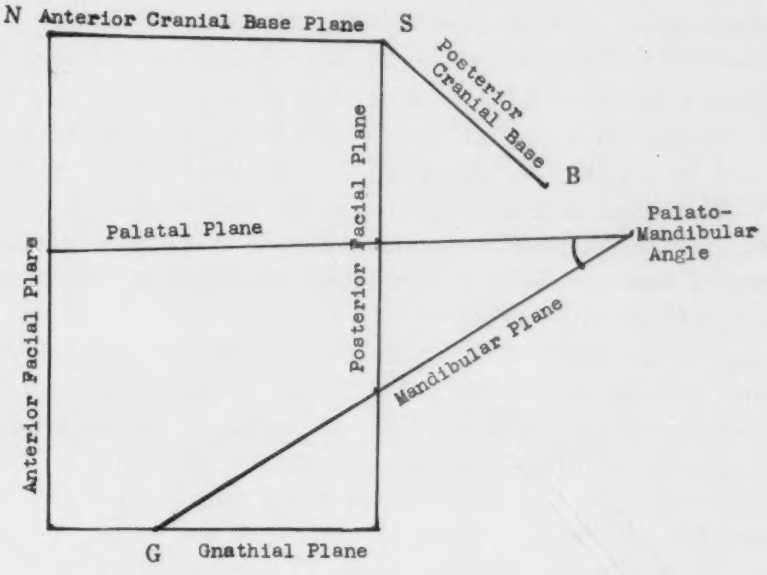
USE OF THE LATERAL FACIAL RECTANGLE

The cranial base angle N-S-B shows the tilt of the facial skeleton relative to the posterior cranial base. This will be one of the factors determining the degree of facial prognathism. Prognathism, however, may increase by a growth of the facial skeleton which does not involve any change in the cranial base angle.

The form of the facial rectangle will differentiate between the long shallow and the short deep face. It should be noted, however, that the length of the anterior cranial base (N-S) does not rigidly determine facial form. Faces showing marked dissimilarity of size and form may have a cranial base (N-S) of the same length.

The palatal plane within the facial rectangle indicates the comparative size of the upper and lower parts of the facial skeleton. The upper facial skeleton contains the nasal cavity and the greater part of the orbital cavities. The lower facial skeleton contains the upper and lower dentitions, their supporting alveolar bone, and the body of the mandible.

The profile of the facial skeleton may be altogether behind the anterior facial plane or it may, in some part, extend in front of it. The relationship of the facial profile to this plane is a measure of anteroposterior facial growth and also of the various forms of prognathism (facial, alveolar, and dental).



THE FACIAL RECTANGLE AND ASSOCIATED PLANES

Fig. 2.—The planes used in the construction of the lateral facial rectangle.

The posterior facial plane passes between the mandibular condyle, which lies behind it, and the pterygopalatine fossa (posterior border of the maxilla), which lies in front of it, and is a means of estimating the relative position of these important structures.

The point of the chin (gnathion) lies at some point along the gnathial plane; this point may lie closer to the anterior or to the posterior facial planes.

ANALYSIS OF FACIAL FORM AND GROWTH AS SEEN IN LATERAL CEPHALOGRAMS

At the present state of our knowledge, there seems to be little value in attempting any rigid classification of facial types. Facial growth takes place in three dimensions—height, depth, and width—and over-all facial analysis should first determine the relative amount of growth in each of these dimensions for each person. Growth in height and width can be analyzed in lateral cephalograms, while frontal cephalograms are used in the analysis of growth in width and height.

Growth in Facial Height.—Growth in facial height is determined by the following:

1. The growth of the cartilage of the nasal septum and its extent are approximately indicated by the height of the nasal cavity (between the cranial base plane and the palatal plane), bearing in mind that the palate also descends by bone deposition and resorption.

2. The vertical component of growth of the cartilages of the mandibular condyles. The extent of this is shown by the height of the mandibular ramus.

3. The growth of the alveolar bone of both jaws. The extent of the vertical growth of the upper alveolar process is indicated by the distance between the palatal plane and the occlusal plane.

The growth of the alveolar bone in the vertical dimension is a vital factor in the development of a normal face. The growing alveolar bone fills in the space created by the cartilage growth sites in the nasal septum and mandibular condyles.[6] This space is usually greater in the high type of face, and failure of alveolar growth will produce various forms of open- and close-bite. It has been suggested that one form of close-bite is the result of failure of alveolar bone growth in the buccal segment.[9]

The greater the height of the upper face, the greater must be the length of the mandible between the condyle and the chin. Failure of mandibular growth in this dimension will result in one form of postnormal occlusion unless a compensatory forward growth of the alveolar element takes place. In the same manner a low upper face may be associated with a more forward relative position of the mandible. In facial analysis the height of the upper face and of the mandibular ramus should always be noted. It is important, however, to realize that there is no necessary correlation in these relationships; each individual case must be analyzed without any preconceived ideas regarding what must go together to make up a normal morphologic pattern.

Growth in Facial Depth.—This growth is determined by the following:

1. The horizontal component in the growth of the cartilage of the nasal septum. This can be approximately estimated by the length of the hard palate.

2. The horizontal component in the growth of the cartilages of the mandibular condyles.

3. The amount of surface deposition of bone along the facial profile, especially in the forehead region (increasing the thickness of the frontal bone), at the alveolar region (increasing the amount of alveolar prognathism), and at the chin region.

Growth in facial depth is associated with the amount of mesial migration of the upper and lower dentition through the growing alveolar bone.[4] It should be remembered, in the analysis of facial growth in this dimension, that the glenoid fossa with which the mandibular condyle articulates may move downward or downward and backward in association with growth changes in the

cranial base (spheno-occipital synchondrosis).[2] This change in position of the glenoid fossa renders the Frankfort plane unreliable as a "fixed" base for the superimposition of serial roentgenograms.

Changes in the Anterior Cranial Base.—During childhood nasion may migrate upward on the frontal bone,[7] and the study of growth changes in the chimpanzee gives some evidence that the pituitary fossa may move backward during adolescence. These changes should engender caution in the use of the anterior cranial base line (N-S) as a "fixed plane" for purposes of superimposition. The most stable region in the skull from about 3 years onward is the region of the cribriform plate of the ethmoid which usually can be located in a good lateral roentgenogram of the skull.[3] In superimposing serial cephalograms, however, one should not make slavish use of any single "fixed" plane or points but should take into account all the possible variations and growth changes. Another important region which should be taken into account in the analysis of facial growth changes is the easily identified pterygopalatine fossa. Its upper part, like the cribriform plate, is a relatively stable region after the third year.

Palatal and Mandibular Planes.—The tilt of the palatal plane relative to the cranial base plane gives information on the nature of the process of palatal descent. The two planes are often closely parallel to one another, but they may show some variation in their relationship to one another during growth.[2] The relation of the mandibular plane to the palatal plane often gives useful information. A wide palatomandibular angle may be associated with a mandible of such a form that a relative overgrowth of the anterior alveolar segments is required to maintain a normal occlusion.[8] A wide angle, however, is not necessarily associated with malocclusion but with a situation favorable for the establishment of certain forms of "open-bite" and "postnormal" deformities. The relationship of the occlusal plane to the palatal plane, in addition to giving information on the height of the palatal vault, provides useful information on the relative growth of the anterior and posterior alveolar segments.

DISCUSSION

An important element in the anlysis of craniofacial morphology is the relationship of facial height to facial depth (anteroposterior dimension). The downward and forward growth of the upper facial skeleton (maxilla and adjacent bones) is determined to a considerable extent by the direction of growth of the cartilage of the nasal septum. The direction of growth of the mandible is determined to a considerable extent by the growth of the cartilages of the condyles. The adjustment between the growth of these two parts of the facial skeleton is carried out by the growth of the intervening alveolar bone, and it is the growth of the upper and lower alveolar elements which determines the pattern of dental occlusion. In different persons there is a difference in the ability of alveolar bone to "compensate" for variations in the growth patterns of the upper and lower facial skeleton. In such conditions as microcephalic idiocy and in abnormal shortening of the cranial base,[5] in which there is a deformity of some part of the craniofacial skeleton, there have been individual cases in which this

compensatory growth of the alveolar region has been adequate to produce a normal dental occlusion. On the other hand, there are cases which show a normal relationship of the various parts of the basal facial skeleton and a deficiency in the development and growth of the alveolar bone. This "variability" of the growing facial skeleton renders any rigid use of the relationship between various fixed points, planes, and angles in diagnosis and prognosis or in the classification of facial types of little value except as an exercise in geometry. In orthodontics there has been too much mechanics, too much geometry, and an excessive glorification of the ghostly concept of the normal facial type. Normal occlusion can readily be estimated by tooth relationships, but the concept of a normal face is much less easily determined. From the orthodontic point of view, a normal face could be defined as one in which there was normal occlusion, but this definition will include a very wide range of facial types. The variability of facial form is seen not only in the racial characteristics of the great human categories of Caucasian, Negroid, and Mongolian but within each of these racial groups and their various subdivisions. Certain types of faces may be associated with a tendency toward certain kinds of malocclusion, but this branch of orthodontics has so far been neglected. Care is also necessary in the use of measurements and statistics. There is no such thing as a "normal" length for the mandible or the cranial base or for any of their parts. There is a range of variation, but this is so wide as to be of little diagnostic value. Furthermore, such categories as "postnormal," "prenormal," "open bite," and "close-bite" are not themselves simple and readily definable entities; rather, each is a "family" consisting of an unknown number of separate entities. Until we know more about the nature of these entities we cannot use statistical methods of analysis without a great deal of caution.

SUMMARY

A simple frame of reference is described for use in the analysis of craniofacial morphology and growth as shown in lateral-view cephalograms. Certain important regions in the skeletal framework of the face are described in relation to growth in the vertical and anteroposterior dimensions.

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REDUCED RADIATION FOR AN ORTHODONTIC SURVEY

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INTRODUCTION

THE intense concern with radiography in the lay press and in scientific journals[1-3] demands a justified concern and conservativism toward this tool. Until a more complete and knowledgeable evaluation of the effects of radiation is forthcoming, it is incumbent upon each orthodontist to reduce the amount of radiation to each patient to the smallest amount consistent with his diagnostic needs. It is the purpose of this article to present a method of obtaining adequate films for an orthodontic survey with a very minimum of radiation to the patient.

METHOD

The technique employs the use of a 90 KVP machine, high-speed screens (Patterson intensifying screens), and ultrafast film (Ansco high-speed). The survey consists of one cephalogram, two lateral jaw films, two occlusal films, and bitewing films if occlusal films are not available. The time, distance, and roentgen dose of each film are shown in Table I. A limiting diaphragm described

TABLE I. DOSE TO SKIN USING HIGH-SPEED FILM AND SCREENS

TYPE EXPOSURE	TYPE FILM	DISTANCE TARGET–SKIN (INCHES)	KVP	MA.	TIME (SECONDS)	R* (ROENTGEN)
Cephalometric	High-speed film High-speed screens	60	90	10	1/10	0.004
Right lateral jaw	High-speed film High-speed screens	16	60	10	1/10	0.029
Left lateral jaw	High-speed film High-speed screens	16	60	10	1/10	0.029
Maxillary occlusal	Superspeed	8	90	15	1/10	0.076
Mandibular occlusal	Superspeed	8	90	15	1/10	0.076
					Total	0.214
Right bitewing	Superspeed	8	90	15	3/10	0.23
Left bitewing	Superspeed	8	90	15	3/10	0.23
					Total	0.674

*Dosage calibrated to skin using ionization chamber; 2 mm. added aluminum to x-ray tube. (Victoreen 0.25 r chamber previously calibrated against gamma rays from radium.)

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Fig. 1.—Method of taking lateral jaw film. Extension for localizing central beam is made from acrylic and is manually held in place while aiming the cone. It is removed prior to exposure.

Fig. 2.—Cephalometric radiograph taken at 90 KVP, 10 Ma. for one-tenth second; 0.004 r measured at skin.

in an earlier article[4] is included in the cephalostat. The technique for taking the lateral jaw films is illustrated in Fig. 1. An acrylic cup with an 8 inch extension was processed to fit the tip of the x-ray cone. This facilitates the alignment of the central beam as illustrated. An example of each type of film for the proposed survey may be seen in Figs. 2, 3, and 4.

Fig. 3.—Lateral jaw film taken at 60 KVP, 10 Ma. for one-tenth second; 0.029 r measured at skin.

Fig. 4.—Occlusal film taken at 90 KVP, 15 Ma. for one-tenth second; 0.076 r measured at skin.

DISCUSSION

An indication of the roentgen dosage of these exposures to the patient under more conventional methods may be seen in Table II. It is apparent that the suggested method cuts down the patient exposure from a possible 2.45 r to 0.214 r, almost a 90 per cent reduction.

TABLE II. DOSE TO SKIN USING REGULAR FILM AND SCREENS

TYPE EXPOSURE	TYPE FILM	DISTANCE TARGET–SKIN (INCHES)	KVP	MA.	TIME (SECONDS)	R* (ROENTGEN)
Cephalometric	Regular film Regular screens	60	60	10	2½	0.045
Right lateral jaw	Regular film Regular screens	8	60	10	½	0.50
Left lateral jaw	Regular film Regular screens	8	60	10	½	0.50
Maxillary occlusal	Superspeed	8	60	10	½	0.50
Mandibular occlusal	Superspeed	8	60	10	½	0.50
					Total	2.45
Right bitewing	Regular	8	60	10	2½	2.5
Left bitewing	Regular	8	60	10	2½	2.5
					Total	7.45

*Dosage calibrated to skin using ionization chamber; 1 mm. added aluminum to x-ray tube.

High-speed screens can be fitted to many size cassettes and are available from the x-ray manufacturers. High-speed films are now available from the film companies. The contrast of the film using the described cephalometric technique is not as marked as in the older techniques, but I have found it adequate for picking out landmarks. The soft-tissue registration is superior. The lateral jaw films are equal to my older films and may be used for locating hard-tissue pathology. They also may be used to survey for suspicious periapical areas that may require individual films.

TABLE III. GUIDE TO TOTAL AMOUNTS OF RADIATION IN VARIOUS X-RAY EXAMINATIONS*

EXAMINATION	AVERAGE NO. OF FILMS	X-RAY CURRENT		TARGET DISTANCE (INCHES)	SKIN DOSE (R)
		KV.	MA.		
Skull—routine	8	58-68	60	36	4.0
Sinuses	4	66	10	30-36	2.0
Mastoids	3	60	5-10	30	1.2
Teeth—full mouth	10	65	150	8	21.0
Abdomen	1	75	90	36	1.0
Gall bladder	4	75	90	36	4.0
Hips	2	70-78	20-75	36	2.5
Femur, lower two-thirds	2	68	50	36	1.0
Arm or elbow	2	60	100	36	0.6
Hand	2	55	50	36	0.3

*Condensed from table in Robbins, L. L.: New England J. Med. 257: 922-926, 1957.

It is interesting to note that an entire orthodontic survey as described above (0.214 r, Table I) exposes the patient to less radiation than a single bitewing film using a high-speed emulsion (0.23 r, Table I). When we compare the patient dosage for the *entire* surggested survey (0.214 r) to that of a single film using the older techniques (2.5 r to 5 r), we note that the patient would receive from one-tenth to one-twentieth the irradiation of a *single* periapical or bitewing film. The radiation of the proposed orthodontic survey

may be compared to the radiation of exposures elsewhere in the body by inspecting Table III, which is based on the experience of the Department of Radiology of the Massachusetts General Hospital.

SUMMARY

A method has been suggested for cutting down the number of exposures and the amount of radiation for each exposure in the routine use of the orthodontic survey. The use of a 90 KVP machine, high-speed film, and high-speed cassettes is recommended.

The calibrated roentgen dose to the patient in the orthodontic survey is 0.214 r; with two bitewing films it is 0.674 r.

I wish to acknowledge my thanks to Mr. Charles K. Spalding who made the readings on the ionization chamber.

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PRESENTATION OF THE ALBERT H. KETCHAM MEMORIAL AWARDS, 1958, BY LOWRIE J. PORTER, PRESIDENT OF THE AMERICAN BOARD OF ORTHODONTICS

Mr. President, Dr. Eby, Dr. Pollock, Fellow Directors of the American Board of Orthodontics, Members of the American Association of Orthodontists, and Guests:

As President of the American Board of Orthodontics, I have the honor of presenting to you those who are today seated on the dais with me—first, the president of the American Association of Orthodontists, Dr. Franklin C. Squires. Next, I present the six other directors of the American Board of Orthodontics: Dr. Humphrey, Dr. Highley, Dr. Salzmann, Dr. Wylie, Dr. Dewel, and Dr. Bowyer.

We are also honored to have with us some former recipients of the Albert H. Ketcham Memorial Award. I present Dr. Charles R. Baker and Dr. Leuman M. Waugh. I know that you are fully aware of the attainments of these gentlemen. We are sorry that the other past recipients could not also be here with us today.

The Ketcham Award is given in memory of Dr. Albert H. Ketcham who, in his presidential address to the American Association of Orthodontists in 1929, recommended that an American Board of Orthodontics be organized for the purpose of examining and granting certificates of competence to successful candidates. Since the establishment of the Ketcham Memorial Award in 1937, seventeen men have been recipients of this the highest honor which can be conferrred by orthodontics in recognition of notable contributions to our specialty.

Previous to this time only one award has been given each year, but, due to the fact that membership in the American Association of Orthodontists has quadrupled since the award was first created, it was recommended by the Ketcham Award Committee in 1956 that more than one award be given in any one year if that seemed to be warranted. This suggestion was unanimously approved by the American Board of Orthodontics as well as the American Association of Orthodontists, and consequently two awards will be given this year to two of the most outstanding men in our profession—men who have not only served dentistry and orthodontics by holding many high offices but also have sacrificed unstintingly in teaching, writing, editorial work, and military service. As a united team over a period of many years, they have largely been the ones who have established, set up the policies, and diligently carried on the editorial responsibilities of the AMERICAN JOURNAL OF ORTHODONTICS, which is now recognized as one of the finest professional journals in existence. These

two men have so greatly contributed to the growth and welfare of orthodontic literature that it becomes most appropriate that each of them should receive this honor in the same year.

Today we have gathered to pay tribute to Dr. Harvey Carlyle Pollock, Sr., and Dr. Joseph Davis Eby, both of whom have unstintingly given themselves to the dental profession for a period of fifty years and thus have become eligible to be elected to that great assembly known as the Golden Anniversary Group. During these years their contributions to dental and orthodontic literature and progress have been most outstanding. These gentlemen have had marvelous dental careers.

Dr. Harvey Carlyle Pollock, the son of Dr. Samuel H. and Janet Carlyle Pollock, was born in Foosland, Illinois, but was reared in Rocky Ford, Colorado, where his father practiced dentistry.

Carlyle, or "Kyle" as they called him then, enjoyed fishing, hunting, and horseback riding, as all normal boys do. Hunting ducks, jack rabbits, and hawks was one of his early pleasures and is recorded by many pictures of automobiles and wagons covered with numerous trophies of his hunting expeditions. A pack of greyhound dogs and an organized horseback hunt for coyotes on the prairie constituted a frequent pastime of the future Dr. Pollock.

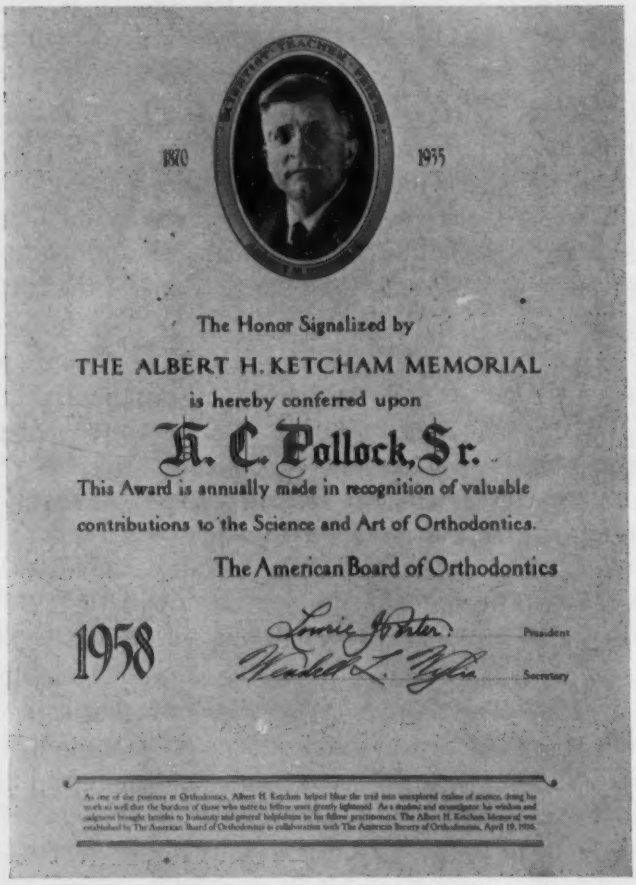
When Kyle was graduated from high school he went to work during vacation as a farm hand. One day, after a very hard hay-pitching session, he came home completely exhausted and stretched out on the living room floor to rest. Soon his father came in and asked, "Son, how much money did you make today?" The amount was naturally very small. His father then pulled a rather substantial wad of greenbacks from his pocket and announced that that was his earnings for his day's work. This made such an impression on young Kyle that he offered little opposition to continuing his education at Colorado College at Colorado Springs and then going into dentistry. He was graduated from the University of Michigan Dental School in 1907.

Returning to his home town of Rocky Ford, he entered into the practice of dentistry with his father. Dr. Pollock's father enthusiastically turned over to his son all of his orthodontic cases and also all cases requiring treatment of pyorrhea. This was the "expert" talent that his father had been looking for because the elder Dr. Pollock, who had studied under Dr. Calvin S. Case, had been extracting teeth in a number of cases and these extractions had resulted in spaces, tipped teeth, and closing bites which worried him considerably.

After two years of orthodontics in his father's office, during which time the younger Dr. Pollock says that he "made a bad situation worse," they decided that if Carlyle wanted to continue along this line he should take a course under someone who knew more about in than they did. Hearing that Dr. Edward H. Angle was conducting a school in New London, Connecticut, and that he advocated orthodontic treatment without extractions, Kyle corresponded with Dr. James Burrill of Chicago, Dr. William E. Wilson of St. Louis, and Dr. Albert H. Ketcham of Denver, and finally joined Dr. Angle's

course, from which he was graduated in 1911. He then returned to his father's office in Rocky Ford for a few months but soon moved to Denver, Colorado, where he became an associate of Dr. Ketcham.

After a short time with Dr. Ketcham, Dr. Pollock moved to St. Louis in 1912 to continue the practice of Dr. William E. Wilson. Here he followed the inspirational teachings of Drs. Angle and Ketcham, who were dedicated to the proposition of maintaining a full complement of teeth in all cases. In a recent letter Dr. Pollock says: "And he who dared remove a tooth for the correction of malocclusion did so at severe risk to his reputation and the respect of his confreres."


1870
1935
The Honor Signalized by
THE ALBERT H. KETCHAM MEMORIAL
is hereby conferred upon
H. C. Pollock, Sr.
This Award is annually made in recognition of valuable contributions to the Science and Art of Orthodontics.
The American Board of Orthodontics
1958
President
Secretary

ALBERT H. KETCHAM MEMORIAL AWARD CONFERRED ON DR. H. C. POLLOCK

Dr. Pollock's decision to locate permanently in St. Louis resulted in his marriage in 1919 to Miss Adele Nichols. Their two children have followed in his footsteps—their son, Carlyle, Jr., is practicing orthodontics in Denver and their daughter, Judy, is a student in dental hygiene in Kansas City, Missouri. Dr. Pollock's decision to locate in St. Louis also became a most important step in the record of the orthodontic specialty, for it was there in 1914 that Dr. C. V. Mosby, president of The C. V. Mosby Publishing Company, conceived the

idea of publishing a journal devoted to the rapidly growing specialty of orthodontics, the progress of which he had watched for some time. This idea was in reality sparked by Dr. Charles Mayo of the great Mayo Clinic of Rochester, Minnesota, who persuaded Dr. Mosby to believe that orthodontics would become one of the most vital fields of dentistry. Its previous background, however, probably came from Dr. Mosby's acquaintance with Dr. Angle, who had practiced in St. Louis and was then training students to lay the groundwork for the specialty of orthodontics.

A. Falk Jepsen.

DR. H. C. POLLOCK

After several luncheon conferences, Dr. Mosby agreed in January, 1915, to finance and start the publication of a journal to be called THE INTERNATIONAL JOURNAL OF ORTHODONTIA if Dr. Pollock would agree to provide him with contacts, ideas, and manuscripts. In 1938 the name of this publication was changed to the AMERICAN JOURNAL OF ORTHODONTICS.

Since Dr. Angle had revealed little interest in the editorship of the new journal, Dr. Pollock suggested that Dr. Martin Dewey be selected as editor. Dr. Pollock agreed to become editor of the Abstract Department and "general trouble shooter," for which he received no salary. In 1923 he became associate editor of the JOURNAL, and in 1930 he became editor in chief, an office which

he continues to hold. In a recent letter he says: "During those many years there have been periods of joy and satisfaction but also many periods of grief and turmoil."

Although many controversial issues have arisen since Dr. Pollock started his editorial career in orthodontics some forty-three years ago, he has always been an ardent enthusiast for down-to-earth health measures and for fair play for the dentist, the orthodontist, and the public. This is strikingly evident when one reviews his many sound and practical articles and clinics and hundreds of editorials, which have appeared from 1915 to the present time, in all of which he shows an intense interest in and desire for orthodontic progress. Serving as secretary and as a teacher during the early years of the Dewey School of Orthodontia, from 1917 to 1919, gave him a broad view of orthodontics of those times. "Then, just as now," he says, "there were so-called purists and cork-bobbing specialists, but we all had one thing in common—none of us knew for sure what we were doing."

Even when Dr. Pollock was very busy with editorial work and his private practice, he never lost his love for the great Rocky Mountains where for many years he and his family have spent their summer vacations. In 1923 Dr. Pollock acquired his ranch in the San Juan country of Colorado and there, with the help of his associate, Dr. Leo Shanley, he initiated a boys' ranch known as the Rancho Mesa Verde. Here some 30 boys from the East and the Middle West took part in rather strenuous outdoor activities. It is claimed that on one pack trip with these boys Dr. Pollock and the cowboy guide lost the trail on the top of the Continental Divide and were stranded for several days high above the timberline, with only one sack of flour upon which to subsist. Eventually the native guide found a burro track which they followed down through the cap rock and back to civilization, which accounts for the fact that Dr. Pollock is with us today to receive the ketcham Award.

In 1926 he acquired the Telawauket Ranch on the Pine River near Durango, Colorado. This ranch was the first and is still one of the most colorful dude and cattle ranches in Colorado. Many orthodontists have been patrons and guests, and on one occasion several years ago the Denver Summer Seminar was held there.

Dr. Pollock's many editorial contributions over the past forty-three years have been a tribute to his integrity and his great interest in sound and sane decisions for the advancement of his profession. These most worthy editorial accomplishments are achievements which often go unnoticed and unappreciated by those of us who are not familiar with the many complications and heartaches which are a part of editorial undertakings. Under the guidance of Dr. Pollock, there have been 511 complete issues of the AMERICAN JOURNAL OF ORTHODONTICS. It is most noteworthy that during the past forty-three years it has not missed a single monthly publication. Because of Dr. Pollock's high standards and his constant desire for better, saner, and sounder orthodontics, his control of the AMERICAN JOURNAL OF ORTHODONTICS has always been for the advancement and improvement of our specialty.

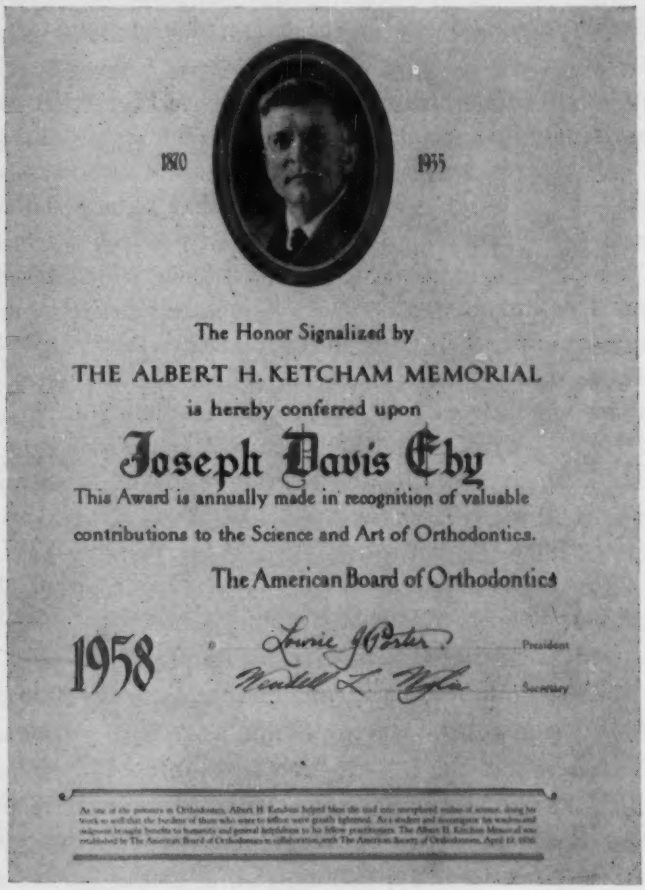
A friend recently wrote to me, saying: "Reading through one of Dr. Pollock's recent issues of the AMERICAN JOURNAL OF ORTHODONTICS, I regard it as one of the very best. I can see patience, sound wisdom, and the powerful persuasive influence of that firm guiding hand that is shepherding us on to the orthodontics of tomorrow where, by the sane revelations of our true breadth and depth, we will take our rightful place among the other learned professions."

Dr. Pollock's activities, however, have not been limited to editorial work, for his many writings on appliances and other techniques and philosophy are familiar to us all. I have not attempted to list his hundreds of very timely editorials or his many valuable papers, although I have a list of nearly forty which have been published and there are many more which have not been published. I do not plan to name the many offices which have been held by Dr. Pollock, but I would be remiss if I did not tell you that for many years he has been very prominent in civic and social activities in St. Louis and that it was because of his early activities on behalf of the advancement of our profession that he was selected president of the American Society of Orthodontists in 1936 and president of the St. Louis Dental Society in 1922. For nine years, from 1921 to 1930, he was Secretary of the Missouri State Dental Society. He was Professor of Orthodontics at Washington University School of Dentistry from 1930 to 1935 and later, from 1944 to 1947, Professor of Orthodontics at the St. Louis University School of Dentistry. He is a Fellow of the International College of Dentists, and a member of the Delta Sigma Delta fraternity. He has been chosen as an honorary member of the Southwestern Society of Orthodontists and also of the Mexican Orthodontic Society.

Awards have been given for appliance therapies, research, and other activities, but never before has a man been so highly honored for his editorial accomplishments. Few of us can realize or fully appreciate all that he has done, both JOURNAL-wise and from the standpoint of personality influence. He has been a Rock of Gibraltar which stands firmly in the face of attacks, evolutions, and challenges, but by his masterful and very steady long-objective policies he has editorially caused both himself and the JOURNAL to emerge as winners for our profession. During the many years that he has so unselfishly served our profession, he and the editorial staff have been responsible for building the forty-two volumes of the AMERICAN JOURNAL OF ORTHODONTICS to the greatest source of orthodontic literature and thus have permanently recorded for future reference the advancement and progress of this specialty. For these accomplishments we owe him a great debt of gratitude and, because of these attainments and his unswerving loyalty to this profession, it becomes most appropriate and worthy that the Albert H. Ketcham Award be conferred upon him today.

Now I wish to speak of the other recipient who has been chosen for the Albert H. Ketcham Memorial Award. He is none other than our beloved Dr. Joseph D. Eby, or just plain Jo as he is known to most of us. We who have

known him for many years recognize some characteristics equaled by few and surpassed by none. They have so dominated his personality that these traits have been the driving power behind much of his activity in his long and distinguished professional life.



ALBERT H. KETCHAM MEMORIAL AWARD CONFERRED UPON DR. JOSEPH DAVIS EBY.

Dr. Eby was born in Nevada, Vernon County, Missouri, the son of Frank Thomas and Edwana Davis Eby. His first fourteen years were spent in his home town where he says that he was a "cross between Huckleberry Finn, Tom Sawyer, and Peck's Bad Boy." Dr. Eby lost his father when he was a baby, and he says: "Living alone with my mother much of this time did not offer too much leeway, for she controlled things with the moral effect of a switch from her favorite plum tree." To his mother, he always remained a very faithful and devoted son, thinking of her constantly and providing her with all the possible comforts of life until her recent death in Atlanta at the age of 91. This devotion is a great tribute to Dr. Eby and also to his wonderful mother.

Sawing wood, milking cows, raising chickens, killing rats, and playing hooky from the same schools that Dr. C. V. Mosby had once attended seemed

to help to build for him a splendid solid character. As a normal boy, he enjoyed every opportunity with his homemade fish pole, his can of worms, the old swimming hole, and his cherished baseball which he had made by winding string around a rock core.

"The exalted height of my ambition," he says, "was to become a real hard-ridin', rootin', tootin', and sharp-shootin' cow-poke in Texas until my mother and a wonderful aunt and uncle in Atlanta picked me up and dumped me into the office of their very close friend, Dr. Thomas P. Hinman of Atlanta, Georgia, where a most affectionate and close relationship developed." There his life in a new world of opportunity began to dawn.

Gábor Éder.

DR. JOSEPH DAVIS EBY.

It was here at the age of 15 that he lived in a beautiful southern home in the vicinity of Fort McPherson, Georgia, where he was attracted to the martial spirit of that old army post. This may have been the birthplace of one of his greatest characteristics—his most outstanding patriotic spirit. I can visualize this lad following the companies at morning drill, his feet moving out in strict cadence with the military bands; I can see this boy coming to a rigid "attention" or giving a smart salute. Long before his youthful mind could comprehend it all, every fiber of his body and soul was dominated by a spirit of patriotism which has grown through the years and is a vital part of his life today.

"So often," Jo says, "I'd be late for supper when I'd sneak down to the Fort for the evening dress parades and just stand there and thrill and shiver."

Little did he realize then that these experiences were a most essential step in preparation for a great military future and a complete dedication of himself for magnificent service to his country through the recognition of his professional ability at the time of the first World War.

Beginning his employment in the office of Dr. Hinman in June, 1903, gave him a valued apprenticeship before he entered the Southern Dental College in 1905. This is now the Dental School of Emory University. After his graduation in 1908 he became associated with Dr. Hinman who was professor of orthodontics in the school. Two or three years later Dr. Eby visited the office of Dr. Calvin S. Case to learn of his methods of appliance therapy. A short time thereafter Dr. Hinman took Dr. Eby to New York to visit Dr. Victor Hugo Jackson, where he learned more about the Jackson appliance. He had been using this appliance, in addition to clamp bands and the Angle "E" arch, for several years.

His fame soon spread and his participation in the giving of papers and clinics on orthodontics, porcelain baking, and gold casting became much in demand before southern dental and orthodontic societies.

Throughout his dental career thus far his spirit of patriotism had been outstanding. After fourteen years of association with Dr. Hinman, and at the request of colonel W. H. G. Logan, Chief of the Army Dental Corps, he was commissioned a first lieutenant in the Dental Corps Reserve in July, 1917, and in August was ordered to active duty, becoming a student officer in the First Army Maxillo-Facial Course held at Washington University School of Medicine in St. Louis, Missouri. It was here that his long and close friendship with Dr. Harvey C. Pollock first began. He was then sent to Chillicothe, Ohio, for duty in the base hospital of the 83rd Division. In February, 1918, he was promoted to the grade of major in the Dental Reserve Corps and was ordered to the Medical Officers Training Camp at Greenleaf, Georgia, as assistant to the senior instructor in the dental battalion in charge of first aid and professional training.

In January, 1919, he was ordered to Walter Reed Hospital where he was in charge of the maxillofacial and oral surgery division of the dental department; he served there until 1922. He was discharged as a lieutenant colonel but later received his full colonelcy in the Reserve Corps. His three years' service at Walter Reed was in close association with Colonel Robert H. Ivy. This outstanding maxillofacial team rehabilitated over 700 men who had sustained wounds or injuries incident to combat service.

By 1919 Dr. Eby had planned to make the Army his career, but his love for orthodontics caused him in 1921 and 1922 to attend the meeting of the American Society of Orthodontists, which later became the American Association of Orthodontists. It was at these meetings, providentially, that his great friend, Dr. John V. Mershon, persuaded him to return to orthodontics for his lifework.

Moving to New York in November, 1922, Dr. Eby became associated with Dr. Victor Hugo Jackson for one year before opening his own office. He was

one of the founders of the Northeastern Society of Orthodontists and served as its president in 1925. In 1924 he was appointed to the Board of Censors of the American Society of Orthodontists and in 1927 was elected to become its president.

At the request of Dr. Mosby, he became a member of the editorial staff of the INTERNATIONAL JOURNAL OF ORTHODONTICS in 1919 and has faithfully and earnestly served with Dr. Pollock continuously for the past thirty-nine years, during which time his contributions to the pages and the management of the JOURNAL have added much to its progress.

He served as president of the New York Academy of Dentistry from 1937 to 1939. In 1941 he was elected a director of the American Board of Orthodontics; he served for a term of nine years, including two inactive years during World War II, and was its president in 1950. He has served for many years on the Advisory Committee on Orthodontic Care to the Department of Health of the City of New York and the Board of Health of the state of New York. He is a Fellow of the American College of Dentists and a member of the Psi Omega dental fraternity.

His teaching career has also been outstanding. He was on the staff of the Dewey School of Orthodontia from 1913 to 1923; he has lectured extensively on cleft palate problems; he has assisted in extension courses in orthodontics given at Columbia University; and he also served at Columbia as an instructor in four courses for Army maxillofacial teams in 1943, for which he refused compensation.

His great interest in fishing, hunting, and the outdoor life is signified by his membership in the Camp Fire Club of America.

In 1950 the Northeastern Society of Orthodontists had a special luncheon in his honor with several hundred in attendance, including his old Army associates, Major General Walter Love, Brigadier General Oscar P. Snyder, Brigadier General Leigh C. Fairbank, and many others. I have letters from these men and also from Dr. Eby's great co-worker in the Army, Colonel Robert H. Ivy, who, in a recent letter to me, says: "Dr. Eby and I each played our respective part working in absolute harmony as a team in the dental and oral surgical aspects of several hundred cases needing maxillofacial surgery. Without his valuable contribution in designing and applying proper fixation of bone fragments and elimination of dental sources of infection, successful surgical procedures would have been impossible in most of these patients. In the whole of my military career, I never observed such regard and affection for any officer as shown for Major Eby by those severely handicapped men under his care. This relationship culminated in their presentation to him of a fine gold watch as an expression of their appreciation of services rendered beyond the call of duty."

Never before had a dental officer been assigned to any such medicomilitary team or given equal status with medical officers. Dr. Eby was recognized for his skill and surgical judgment. His record was startling to the Medical Corps and its writeup was one of the very few orthodontic manuscripts ever

published in medical journals. Had they failed to develop the possibilities of the Dental Corps? Were there other dental officers who could be trained, given surgical experience, and ultimately accepted for service in special surgical units? Was it possible to develop plans and training along such lines for future emergencies in which the Army would have to meet unusual demands? It seemed worth while to develop some such plan. With Jo Eby's remarkable record as the example, plans were developed and training was instituted with this in mind. There followed other important and significant developments until today the Dental Corps of the Army has fulfilled many and varied assignments over a broad field of amazing surgical experiences.

It will not be denied that the record and accomplishments of Jo Eby marked the beginning of the development of the Dental Corps, opening gates for progress which continue to broaden the opportunities for dentistry to serve our great country if our profession will be guided and continually inspired to selfless service for the good of mankind following his example.

Those skillful operative efforts and the postoperative care of hundreds of wounded soldiers constituted one of the most outstanding accomplishments of the Medical Service of the Army of that period. These experiences wove into Dr. Eby's life a sense of professional worth for a lasting service which has been accented throughout all the years that have followed. We all have been inspired by his illustrious life which is so dominated by a tremendous drive, a meticulous attention to detail, and a sound and rare sense of judgment. All these have been evident in both his military and his civic life.

It is interesting to note how closely Dr. Eby's and Dr. Ivy's careers in later life have followed the same pattern. Dr. Eby's first patient with Dr. Hinman was a cleft palate child, and he has maintained a keen interest and a very active part in cleft palate rehabilitation ever since that time. Having been appointed by the Board of Trustees of the New York Hospital and also St. Luke's Hospital, he now acts as consultant in dentistry, and a large part of his energy is devoted to the cleft palate teams of these hospitals. Dr. Ivy followed the same pattern; he is now editor of the *American Journal of Plastic and Reconstructive Surgery* and is also chief of the rehabilitation and cleft palate programs of the Pennsylvania State Department of Health.

This past July Dr. Eby vacationed in Luray, Virgina, and by accident met a former soldier who was the owner of a sporting goods store. A great thrill followed when this man discovered that the man who had come to his store to purchase some tackle was the same Major Eby who had repaired his brother's face after it was badly mutilated in war service. As a result of this reunion, Dr. Eby was able to meet not only that man but also many other of his patients of long ago who came to Luray to pay homage to their great benefactor. We cannot comprehend the depths of feelings or the soul-stirring emotions that gripped the hearts of each of them as they joined in hearty handclasps! Memorable days such as these come only to those who have unselfishly rendered outstanding service to mankind.

It was once said by one of Jo's war buddies that his contribution in World War I was undoubltedly the greatest contribution that was ever made by dentistry in the military service. This spirit of dedicated service has also been characteristic of Jo's professional life.

His talks, his writings, his conversations, and his advice have been outstandingly inspiring to all of us who have entered the field of orthodontics. His recent talk on "Days of Achievement" (AM. J. ORTHODONTICS **43**: 610, 1957) reveals how much we owe to those pioneers who have brought us to the orthodontic threshold of today, and his predictions of tomorrow are inspirational and thought provoking . I am sure that his two daughters, Edwana and Julia, and also Dr. Pollock's family, are very proud of the achievements mentioned and the signal honors being bestowed upon these men on this occasion.

As we review the lives of these two Ketcham Award recipients, we become more and more aware of the fact that the one greatest desire in the hearts of both Dr. Pollock and Dr. Eby is that, through their professional interests and accomplishments, they may have left just one great heritage to the younger men who enter this specialty. This heritage would be the instillation into the minds and hearts of their successors a true desire for integrity, hard work, broad views, and sound principles in their desires for growth and advancement in orthodontics.

It must have been because of such men as these that Longfellow, in "A Psalm of Life," wrote:

> Lives of great men all remind us
> We can make our lives sublime,
> And, departing, leave behind us
> Footprints on the sands of time.

And now, as president of the American Board of Orthodontics, and acting on behalf of the Board as well as the American Association of Orthodontists, it is my high honor and outstanding privilege to present to you, Dr. Harvey Carlyle Pollock, and to you, Dr. Joseph Davis Eby, the certificates attesting that you have been chosen in 1958 to be the recipients of the Albert H. Ketcham Memorial Award, the highest honor which can be conferred upon any person by these two organizations.

RESPONSE BY H. C. POLLOCK TO THE PRESENTATION OF THE ALBERT H. KETCHAM MEMORIAL AWARD

It was only a few minutes ago that we were attending the Golden Anniversary Luncheon at the south end of this ballroom. It was my good fortune to meet a gentleman for the first time, and he said that he had "heard a great deal" about me. I countered that I hoped that he had not heard it all. We both

chuckled understandingly. Now I arrive in the opposite end of this ballroom only to hear Lowrie Porter not only "tell it all" but add things that even I did not know.

Anyway, it was my fine experience to be on the same program with Dr. Porter at the Southwestern Society Meeting some years ago in Fort Worth, Texas. I learned at that time not only that he is a talented speaker, but that he tells a good story. It is now a complete surprise, however, to learn that he has "underground connections" that enable him to dig, dig, dig into the past and come up with stories that have long ago (I thought) expired due to the statute of limitations.

The remarks made in this presentation by Dr. Porter reveal that the basic reason that I find myself standing before you today receiving this great honor stems from the fact that I happened to have had a "ringside" view of much of the creation of the printed record of your specialty over a long period of years. I would like, therefore, to pay tribute at this time where tribute is due—to others who have been responsible for the recording of this forty-seven-year record of your specialty.

This record was made possible by a team working together for a common purpose. First, a physician, the late Dr. C. V. Mosby of St. Louis, Missouri, a very energetic and forceful man, president of The C. V. Mosby Publishing Company, conceived the idea of the JOURNAL. In 1915 (during World War I) I sat with him at a luncheon table over ham sandwiches and a bowl of soup in the dining room of the old Beers Hotel in St. Louis at the time the AMERICAN JOURNAL OF ORTHODONTICS was born.

With the financial backing of Dr. Mosby and under the editorship of that stormy young petrel of dentistry, Martin Dewey, the JOURNAL soon became known as a most independent and forthright publication. Martin Dewey met all problems head on, as was his nature, and this characteristic soon became the trademark of the JOURNAL. If you do not believe that, look up the early bound volumes and read some of the editorials pertaining not only to orthodontics but to many of the big swings in dentistry. You will find that Dewey called the shots on many things that subsequently happened, and also on many things that did not happen. One thing is certain: he had plenty of courage.

Then came our sectional editors, and they contributed much. With these sectional editors appeared a contributor who shares these honors with me today. At that time he was Major Joseph D. Eby of the Armed Forces of the United States. For years I have affectionately addressed him, both in letters and direct salutation, as "Senator Claghorn." The reason that I call him "Senator Claghorn" will be obvious when he starts to speak to you today. He did an amazing job in supplementing maxillofacial surgery with orthodontic services in the rehabilitation of wounded soldiers in Walter Reed Army Hospital subsequent to World War I. A series of articles by Major Eby on this subject appeared not only in the AMERICAN JOURNAL OF ORTHODONTICS but in various medical journals. These various published articles created a tie-in between

orthodontics and maxillofacial surgery and were probably the most important contribution that the specialty of orthodontics ever made to real health service for all time.

Dr. Jack Salzmann of New York became a liberal contributor in the abstract department. Year after year, Dr. Salzmann, Dr. Eby, and all sectional editors served with no compensation of any kind. There were hundreds of authors and many others who contributed much, but the time allotted today permits me to say only that, in short, it was a group working as a team (including the close cooperation of The C. V. Mosby Publishing Company) that created this long printed record of orthodontics of which Dr. Porter made mention a number of times in his presentation of this valued award.

Dr. Leigh C. Fairbank has made valuable contributions as chairman of the Publication Board and as liaison between the publishers and the American Association so, all in all, your editors have enjoyed a fraternal and enthusiastic cooperation.

Notwithstanding whether or not it may be deserved, when your own group, your own specialty, and your own friends make it possible for you to receive orthodontics' highest award, it proves to be a very moving experience and one not soon to be forgotten, I assure you.

With humility, I thank Dr. Porter, the American Board of Orthodontics, the American Association of Orthodontists, and many, many friends for making it possible to share this happy experience side by side with my dedicated friend and co-worker, Dr. Joseph Eby.

RESPONSE BY JOSEPH D. EBY TO THE PRESENTATION OF THE ALBERT H. KETCHAM MEMORIAL AWARD

Occasions of this nature, with their many involvements, in the presence of our great leaders of the present and past, the loved ones and friends, have a way of stiffening our spines, stepping up the beats of our hearts, and bestirring within all of us certain grateful emotions, the possession of which it is my wish that we should all feel and share equally. While the concourse of events in all of our lives has been aided and abetted by our inherent personalities and aptitudes, certain turning points and highlights have resulted from the guiding hand of Destiny and all the great parts which our friends have so nobly contributed to those opportunities.

My words of gratitude to Lowrie Porter are but a poor expression of what I feel so deeply in my heart, as from the days of the Dewey School in 1919 our lives in every way have been so intimately entwined. I am sure that this is one of our greatest mutual privileges and moments of happiness—just to be here together.

Without any question of doubt, the outstanding blessings of my life have stemmed from the emulation of the spirit and the driving force of the inspiration and ideals of my great preceptor and benefactor, Dr. Thomas P. Hinman of Atlanta, Georgia. Entering his office as a youngster under an apprenticeship in 1903 first filled that empty space in my heart so full of love

and provided a mutual affection between us which could, rarely, be equaled only by an actual father and son. Those apprenticeship and college years in Dr. Hinman's busy general practice, including an association of fourteen years under his training, and the influence of his personality established the groundwork in every branch of the dentistry of that period in which it has been quite easy to follow all forms of modern progress with equal interest.

It was in 1904 that certain orthodontic cases which Dr. Hinman had under treatment offered the challenge to the unknown in our growing baby specialty with the principal objective of better preparing youngsters for their expanding futures in that great capital investment to ready them to tackle life at their very best. The first patient that I beheld the day I entered Dr. Hinman's office was a cleft lip and palate case that presented another challenge of a service to humanity, which has ever remained the same throughout my career. It later fell my lot to assist Dr. Hinman in many of these operations on congenital cases and, when ordered to active duty in the Army Dental Reserve Corps in August, 1917, I found that it was largely necessary only to translate this basic training from congenital into traumatic surgery.

As for the three years' service at Walter Reed General Hospital from 1919 to 1921 with Lieutenant Colonel Robert H. Ivy, Medical Officers Reserve Corps, as the senior member of our maxillofacial team, it was not altogether essential that our respective trainings, so intimately interrelated, were to play the major role in matters of clinical routines under the finest facilities, where in that phase the goal of maximum improvement was the first objective and the days and nights were never long enough. It was more the discovery that our personalities and the sensibility of our great responsibility so blended our very spirits into such adjustment as gave our teamwork top efficiency. But there was still a much greater and more impelling incentive than these essentials which motivated our greatest efforts. That was the consciousness of the fact that our patients were the very flower of American soldiery, who had formed the barriers on the front lines of combat that a powerful enemy should not pass. The enemy did not pass and, but for the Grace of God and an eighth of an inch, many of those soldiers would have been among their comrades who made the supreme sacrifice all to the glory of America, "the land of the free and the home of the brave"! What a thrill it was to prepare their faces and noble scars so that they could enter their new lives of peace from those fields of honor! In so far as the splinting necessities were concerned, they were based strictly on the principles of orthodontics, which could be described briefly as security of anchorage and simplicity of design, and for the many forms of traction or immobilization they never failed. Many lessons were learned from the magnified images of that service, and they have followed me through these years as guide lines in orthodontics. I wish there were time and space to record them here today.

To bestow a befitting tribute to Carlyle Pollock would be the same as attempting to include our forty years of friendship together into forty seconds. Suffice it to say that we have stood side by side in one of the most remarkable

experiences both in the protection and development of the interests of the JOURNAL, which has stemmed largely from our mutual affection for Dr. C. V. Mosby, and in those ambitions for the JOURNAL to record such an accurate and authentic account of orthodontic progress that it may continue to be the veritable shrine of our literature. May I thus accord all honor to Carlyle Pollock, one of our greatest individual benefactors, so fully appreciated best by his many intimate friends. It is my hope that all of you will share our heart throbs as we stand here shoulder to shoulder, just as we both will share our gratitude to you.

Another outside but providential influence which was destined to play a major role in the rest of my career came from the gentle spirit and guiding influence of one of our great benefactors, the beloved Dr. John Valentine Mershon, the first recipient of the Albert H. Ketcham Memorial Award in 1937. At a time when prospects for the future seemed to be very clouded and obscure, it was Dr. Mershon who suggested the return to my first love, orthodontics, and again inspired the challenge to continue to face those transitional stages of our progress. Within five minutes he changed the entire course of my career, and this included the move to New York. It has been here since 1922 that so many opportunities for service and contacts with so many wonderful friends have eventuated. To look back in retrospect when all of the events have been appraised, it is obvious that the greatest rewards and blessings should come into all of our lives as the opportunities for service and, the very greatest of all, that there are so many loved ones and friends.

It has been these joys of service and the fraternity of all my great old comrades in arms who have made the capstone of this honor possible, and with whom my heart so deeply wishes to share. In the words of one of the friends from my boyhood in Atlanta, the famous sports commentator, Grantland Rice:

> For when the Great Scorer goes
> To mark against our names,
> He won't write won or lost
> But how we played the game.

My gratitude to all.

FINAL REMARKS OF DR. PORTER

Thank you very much, Dr. Pollock and Dr. Eby.

We are all very proud of you, and in offering my sincere congratulations to you both I am sure that I express the feelings of all of the directors and past directors of the American Board of Orthodontics, the past recipients of the Ketcham Award, the officers and members of the American Association of Orthodontists, the entire dental profession, and your host of friends throughout this country and the entire world.

Editorial

THE NEW YORK MEETING OF THE AMERICAN ASSOCIATION OF ORTHODONTISTS

THE fifty-fourth annual session of the American Association of Orthodontists was held April 27 to May 1, 1958, at the Hotel Commodore in New York City. The president was Dr. Frank Squires of White Plains, New York. The attendance was the largest in the history of the Association. A total of 1,812 persons registered for the meeting. This included 871 members, 387 guests, 481 wives, and 73 exhibitors.

The meeting opened on Sunday evening, April 27, with a get-together cocktail party. The formal meeting was officially called to order on Monday morning by President Squires. The invocation was offered by Dr. Stanley Wheelock. The Address of Welcome was given by Dr. Percy Phillips, president of the American Dental Association, and the response was made by Dr. Edward Martinek, president-elect of the American Association of Orthodontists. This was followed by the President's Address.

The $500.00 Milo Hellman Award for scientific contribution to orthodontics was presented to Bertram S. Kraus, Ph.D., of the University of Washington. Dr. Kraus made some interesting observations. Among other things, he indicated that heredity predestines the shape of the bones of the head and face and that environment is also a big factor in the development of the head, face, and skull. The title of his paper was "Heredity and the Cranio-Facial Complex."

Among the other subjects of discussion at the meeting were the biology of growth, cephalometrics, cleft palate treatment, and simplification of orthodontic appliances and techniques.

In welcoming the orthodontists, Dr. Percy T. Phillips, president-elect of the American Dental Association, declared that "specialty ratings" ought now be considered by all groups in the profession. He expressed the need to place more emphasis upon the preventive instead of the treatment aspects of orthodontics.

The importance of the normal pattern of timing and growth leading to harmony in the face was stressed in the talk by Dr. Harry Sicher.

Interest in the "team approach" to cleft palate problems was reflected in the demonstration by the Lancaster, Pennsylvania, Cleft Palate Clinic. An x-ray motion picture, with sound, revealing the speech mechanism in normal and cleft palate cases was shown. The demonstration emphasized that optimum results were obtained by the work of a team which included the orthodontist, the

prosthodontist, the oral surgeon, the speech therapist, the psychologist, and technical research personnel. Dr. Herbert Cooper is the director of the Clinic and the Symposium.

Both the general discussions and the table clinics showed the trend over the past five years toward use of extraoral orthodontic appliances.

It is always interesting to note the thought forces at work at the annual meetings of the A.A.O. There seems to be a kind of preponderance of thought on some particular phase. At the New York meeting there were the views of anthropologists and geneticists who spoke from a background of genes, chromosomes, environment, and species. There were others who talked of geometric angles created as a result of assembled cephalometric data and an obvious effort to correlate and tie in the two perspectives. There were those whose remarks pinpointed other themes, but more about that later.

Paradoxical views make for much confusion. However, that is true of all health service specialties, and no doubt it will always be so.

Dr. Norman Vincent Peale may have inadvertently explained part of the confusion when he opened the 1958 A.A.O. session with an inspiring talk. On the lighter side, he made reference to the traffic situation in New York. Dr. Peale said that he read a sign in a taxicab that said: "If you can keep your head in all of this confusion, then you do not understand it."

Human genetics was ably discussed by Dr. James V. Neel of the University of Michigan, and the impression was gained that there are still many intangibles about x-ray radiation as related to genetics and that the x-ray is invaluable to the specialist and the patient. With frequent and routine use, however, its possible harmful effects on operators, assistants, and patients must never be ignored or overlooked.

Other talks revealed that all disciplines of anthropometrics are far from standardization and that we are still a long way from an accepted standardization for routine clinical use. In these basic things, the New York meeting was not so different from others; nevertheless, the program was excellent and interesting.

The words "science" and "scientific" are not heard so much now. What with the advertisers of toothpastes, cigarettes, soaps, and patent medicines taking over the words, perhaps a more impressive term is needed. Maybe "biologic disciplines" or something more impressive may come into use. "Science" seems to be losing much of its allure as related to biologic matters. It is being bandied about with so much abandon that it is developing a connotation with sterile impact.

To get back to Dr. Norman Vincent Peale's introductory address, it was impressive and inspiring, particularly when Dr. Peale revealed that his own children had experienced orthodontic treatment and that, in his opinion, by far the greatest asset with which professional men of all kinds can be endowed is that intangible, sensitive thing known as "integrity and confidence"—all other things notwithstanding, that is the important quality for your doctor or orthodontist to have.

It was a great meeting—well attended and well handled. Much credit goes to Dr. Frank Squires and his very efficient and loyal committees, who worked hard and long to make it click.

The world's largest recorded orthodontic meeting was held in the world's greatest city. The next meeting will be in Detroit, Michigan, under the direction of President Edward Martinek. Other reports will appear later, dealing in more detail with the various features of the 1958 meeting.

Officers elected for the following year were the following:

President:	C. Edward Martinek Detroit, Michigan
Vice-President:	Ernest N. Bach Toledo, Ohio
President-Elect:	George M. Anderson Baltimore, Maryland
Secretary:	Earl E. Shepard St. Louis, Missouri

These officers will lead your organization for the remainder of 1958 and for the first half of 1959.

H. C. P.

The Fifty-fourth Annual Meeting of the American Association of Orthodontists

PROGRAM OF THE 1958 MEETING OF THE AMERICAN ASSOCIATION OF ORTHODONTISTS

WE HAVE adopted the policy of printing the formal agenda of the A. A. O. each year subsequent to the time of the meeting. It is hoped that this policy will create a permanent record of the programs which may be referred to in years to come.

The formal program of the A. A. O. meeting held April 27 to May 1, 1958, in New York was the responsibility of Franklin Squires, president; Wilbur J. Prezzano, chairman of the Local Arrangements Committee; and John R. Thompson, chairman of the Program Committee. The program follows.

MONDAY, APRIL 28

Opening Meeting

OFFICIAL OPENING. President Franklin A. Squires.

INVOCATION. Dr. Arthur Stanley Wheelock, Church of the Highlands, White Plains, New York.

ADDRESS OF WELCOME. Percy T. Phillips, President-Elect of the American Dental Association.

RESPONSE. C. Edward Martinek, President-Elect of the American Association of Orthodontists.

PRESIDENT'S ADDRESS. Franklin A. Squires.

Scientific Meeting

(Presiding—John R. Thompson, Program Committee Chairman)

THE RESPONSIBILITY OF THE PROFESSIONAL PERSON TO HIS PATIENTS, SOCIETY, AND HIMSELF. Dr. Norman Vincent Peale.

(Dr. Peale is the minister of Marble Collegiate Church of New York City and has attained recognition as an eminent counselor on human affairs. He is the author of many forceful and edifying books: *Art of Living, The Power of Positive Thinking, Guideposts, Faith Is the Answer,* and many others.)

RADIATION AND GENETICS. James V. Neel.

(Dr. Neel is Professor of Human Genetics, Chairman of the Department of Human Genetics, and Professor of Internal Medicine at the University of Michigan Medical School. He is also Consultant for the United States Public Health Service and Atomic Energy Commission, and he is Chairman of the Neel Commission established for the study of the effects of atomic radiation in Hiroshima and Nagasaki.)

GOLDEN ANNIVERSARY LUNCHEON.

PRESENTATION OF THE ALBERT H. KETCHAM MEMORIAL AWARD OF THE AMERICAN BOARD OF ORTHODONTICS. Presentation by Lowrie J. Porter, President, The American Board of Orthodontics. Acceptance by Joseph Davis Eby and H. Carlyle Pollock, Sr.

Scientific Meeting

(Presiding Chairman—Clifford G. Glaser, President, Northeastern Society of Orthodontists)

SYMPOSIUM ON SERIAL EXTRACTION PROCEDURES. (The purpose of this symposium was to bring together the points of view of a number of outstanding exponents of this important but controversial subject.)

Introduction: Current Concepts on Serial Extraction in Orthodontic Treatment. B. F. Dewel, Evanston, Illinois, Director, American Board of Orthodontics, and Associate in Orthodontics, Northwestern University.

Collaboration:

1. Serial Extraction as a Treatment Procedure. Z. Bernard Lloyd, Washington, D. C., Professor of Orthodontics, Georgetown University.
2. Research Studies on Serial Extraction. Kenneth C. Marshall, St. Louis, Missouri, Professor of Orthodontics, St. Louis University.
3. Why Serial Extraction? Warren R. Mayne, Salem, Massachusetts.

THE TREATMENT OF ANTERIOR OPEN BITE MALOCCLUSION ASSOCIATED WITH UNFAVORABLE FACIAL SKELETAL PATTERN. J. William Adams, Indianapolis, Indiana, Professor of Orthodontics, Indiana University.

TUESDAY, APRIL 29

Scientific Meeting

(Presiding Chairman—George H. Siersma, Vice-President, American Association of Orthodontists)

DISCUSSION SYMPOSIUM. (The purpose of this symposium was to bring together the opinions of scientists and clinical orthodontists on a current, controversial subject in orthodontics.)

Introduction of the Subject:

The Lower Incisor—Its Influence on Treatment and Esthetics. John T. Lindquist, Indianapolis, Indiana.

(This paper, an American Board thesis for 1957, was published in the February issue of the AMERICAN JOURNAL OF ORTHODONTICS so that the audience would have the opportunity to study it in advance of the meeting.)

Discussion of the Subject:

1. From the Viewpoint of Anthropology.
   Wilton M. Krogman, Ph.D., Professor of Physical Anthropology, University of Pennsylvania, Director of The Philadelphia Center for Research in Child Growth, Philadelphia, Pennsylvania.

2. From the Viewpoint of Growth.
   Harry Sicher, M.D., D.Sc., Professor of Anatomy, Chicago College of Dental Surgery, Loyola University, Chicago, Illinois.
3. From the Viewpoint of Orthodontics.
   Wendell L. Wylie, Professor of Orthodontics, University of California, and Practitioner of Orthodontics, San Francisco, California; Secretary, American Board of Orthodontics.

MILO HELLMAN RESEARCH AWARD. Reading of the Prize Winning Essay and presentation of the award by President Squires.

Prize-Winning Essay: Heredity and the Cranio-Facial Complex—A Study of Concepts and Evaluation Techniques. BERTRAM S. KRAUS, PH.D. (Professor of Physical Anthropology, Department of Orthodontics, School of Dentistry, University of Washington, Seattle; A.B., Western Reserve University 1934; M.A., University of Chicago, 1946; Ph.D., University of Chicago, 1949; Associate Professor of Anthropology, University of Arizona, 1947-1957), WILLIAM J. WISE, D.D.S. (Graduate Student, Department of Orthodontics, School of Dentistry, University of Washington, Seattle; B.S., East Texas State College; D.D.S., College of Dentistry, Baylor University), and RICHARD H. FREI, D.D.S. (Graduate Student, Department of Orthodontics, School of Dentistry, University of Washington, Seattle; D.D.S., School of Dentistry, University of Southern California).

Honorable Mention: Standardized Temporo-Mandibular Joint Radiography Utilizing Radiographically Predetermined Condylar Inclinations. WALTER COOPER SANDUSKY, D.D.S., M.S. (Department of Orthodontics, University of Tennessee; B.S., University of Mississippi, 1941; D.D.S., University of Tennessee, 1945; M.S., University of Tennessee, 1957, also in private practice in Memphis).

The Committee commends and brings recognition to the following investigators for the high quality of the essays which they submitted:

CHARLES J. BURSTONE, D.D.S., M.S., Department of Orthodontics, Indiana University
HERBERT D. DAVIDSON, D.D.S., M.S., Falls Church, Virginia
ALBERT REINSTEIN, D.D.S., M.S.D., Toronto, Ontario, Canada
MILTON SUPERSTINE, D.D.S., M.S., Oak Park, Michigan
GEORGE H. WERN, D.D.S., M.S.D., Austin, Texas

FIRST BUSINESS MEETING.

PAST-PRESIDENT'S LUNCHEON.

Research Section

(Presiding Chairman—J. William Adams)

The Research Section of the Fifty-Fourth Session of the American Association of Orthodontists is respectfully dedicated to the memory of the Chairman of the Research Committee, Dr. Thomas D. Speidel.

RESEARCH REPORTS.

WEDNESDAY, APRIL 30

TABLE CLINICS. William R. Joule, chairman.

Clinician	*Title*
Norman D. Allen New Rochelle, N. Y.	Extra-Oral Therapy in Mixed Dentition Cases
Joseph J. Bonello Pittsburgh, Pa.	The Concept of Dominant Factors in Treatment Planning
Willis R. Brown Mobile, Ala.	A Method of Replacing Missing Anterior Teeth on the Labial Bar During Labio-Lingual Therapy
Charles J. Burstone Indianapolis, Ind.	Segmented Arches: Light Forces for Anterior and Canine Retraction
Arthur M. Corn Jamaica, N. Y.	Extra-Oral Anchorage as an Auxiliary in the Treatment of Mixed Dentition Malocclusion
Solon P. Crain Odessa, Texas	Corrective Retainers
Howard D. Dimond New Brunswick, N. J.	Rapid Fabrication of Plastic Positioners
William W. Fraser Manchester, N. H.	Indirect Band Construction
Maurice Gershater White Plains, N. Y.	A Little Different Approach to Class II, Division 1 Mechanotherapy
Frank P. Gilley Bangor, Maine	Supernumerary and Congenitally Missing Teeth and Their Problems
Morton Heide Larchmont, N. Y.	Planning Tooth Movement in Extraction Cases
Robert J. Henns Orlando, Fla.	A Low-Fusing Silver-tin Solder Alloy for Joining Stainless Arch Wires
Ralph W. Hodges West Hartford, Conn.	A Simple Orthodontic Attachment for Impactions of Difficult Access
William G. Houghton Watertown, N. Y.	Limitations in Class III Treatment
Theodore L. Jerrold Hempstead, N. Y.	The Application and Misapplication of the Bite Plate in Orthodontics
George S. Kendrick Dallas, Texas	Mandibular Displacements and Their Correction
James P. Kerrigan Washington, D. C.	Indirect Technic for Attachment Placement
Warren Kitchen San Francisco, Calif.	Mixed Dentition Treatment
William M. Lathrop Salina, Kansas	Practical Cephalometrics—The University of Kansas City "Compromise" Analysis
Harold E. Leslie Toronto, Ontario	The Treatment of Unerupted Teeth
David Marshall Syracuse, N. Y.	Dimensional Growth
D. C. Miller Columbus, Ohio	Mechanical Spatulation of Alginate Impression Material
George Y. Nagamoto Kenneth K. Nagamoto Los Angeles, Calif.	Two Steps in Extraction Cases

George V. Newman Newark, N. J.	Public Health Orthodontics
Jack Perlow Flushing, N. Y.	Acrylic Labial Arch (A Simplification of Mandibular Anchorage Control; Applicable in Non-Extraction and Extraction Cases)
Martin G. Pesek Lake Forest, Ill.	The Use of Fiber Glass as a Strengthening Material for Acrylic Appliances
Howard W. Peterson Steubenville, Ohio	A Simple Technique for Producing Black and White Prints from 35 mm. Kodachrome Transparencies
Paul V. Ponitz Battle Creek, Mich.	Twin Arch Former
Richard M. Railsback Oakland, Calif.	Serial Extraction
Viken Sassouni Philadelphia, Pa.	Orthodontic Records—Their Importance in Diagnosis and Treatment Planning
Joseph G. Schurter Reseda, Calif.	Closing Bicuspid Spaces With the Pin and Tie Mechanism
Richard H. Stucklen West Chester, Pa.	Lower Lingual Arch with Horizontal Round Tubes
David J. Thompson Elmhurst, Ill.	Is Orthodontics a Mechanical Procedure Only, or a Complete Health Service Involving Growth, Habits, Psychosomatics, Endocrinology, Nutrition, Diet, Etc.
Joseph R. Valinoti, Jr. Manhasset, N. Y.	Bull Treatment of Class II, Division 1
Ted Wachna Windsor, Ontario	The Effective Use of a Simplified Face Bow
Arnold W. Wieser San Francisco, Calif.	The Technique and Use of Prefabricated Bands
Robert V. Winders Milwaukee, Wisc.	Functional Malocclusions With Facial Asymmetries
Augustus L. Wright Philadelphia, Pa.	One to Seven
The University of Buffalo School of Dentistry Buffalo, N. Y. (Clifford G. Glaser, Director of Orthodontics)	Orthodontic Clinical Procedures—University of Buffalo Dental School, Department of Orthodontics
University of California School of Dentistry San Francisco, Calif. (Eugene E. West, Chairman, Division of Orthodontics; Participants—Eugene E. West and Richard M. Railsback)	University of California, Display of Orthodontic Results
Columbia University School of Dental and Oral Surgery (Nicholas A. DiSalvo, New York, N. Y., Director, Division of Orthodontics)	Some Aspects of the Postgraduate Orthodontic Teaching Program at Columbia

Participants:	
Emil Bamonte	Edgewise
Mollyann Blum	
Edward Bukowsky	
Ronald Collins	
James Coyle	
Michael Di Leo	Extraoral
George Florentine	
Fred Hamer	
Adrian Hulsebosch	
Joseph Kronman	
Eugene Murphy	Labiolingual
James Murphy	
Irving Newman	
Stanley Okun	
Herbert Pinsley	Twin Arch
Samuel Reiser	
George Sullivan	
Jules Swick	
George Tunstall	Removable
Richard Vlock	
Alan Weisberg	
Marvin Witkin	

A Presentation of Work Done by Students in the Undergraduate Orthodontic Courses at Columbia University

The University of Kansas City School of Dentistry
Kansas City, Mo.
(Francis M. Calmes, Professor and Director of Graduate Orthodontics; Participants—Francis M. Calmes and Victor D. Bowles)

The Multiphase Appliance and Its Utilization of the Combined Philosophies and Technics Into a Single Treatment Plan of Orthodontic Therapy

Lancaster Cleft Palate Clinic
Lancaster, Pa.
(H. K. Cooper, Director)

Clinical Symposium Related to Indications and Contraindications of Orthodontic Treatment for Cleft Palate Patients

1. Indications for Orthodontic Therapy
2. Contraindications for Orthodontic Therapy
3. The Problem of the Loose Premaxilla
4. Indications for Integration of Orthodontic and/or Prosthetic Treatment
5. Problems of Retention in Appliance Construction
6. Technique of Obturator Construction
7. Role of the Speech Therapist in Diagnosis and Treatment Planning
8. Role of Electronics as an Aid to Diagnosis and Treatment Planning
   (a) Cineradiography
   (b) Sound Spectrograph
9. An Electronic-Dental Approach to Artificial Speech for the Laryngectomee

Participants:

Herbert K. Cooper	Orthodontists
Ross E. Long	
John A. Cooper	
Mohammad Mazaheri	Prosthodontist
Robert T. Millard	Speech therapist
Irvin V. Uhler	Oral Surgeon
F. Allan Hofmann	Technical research

New York University
College of Dentistry
New York, N. Y.
(Samuel Hemley,
Professor, Department of
Orthodontics)

Orthodontic Procedures at New York University

1. Record Forms
2. Appliance Technique
3. Cephalometric Technique
4. Surgico-orthodontics
5. Completed Cases
6. Research
7. Preventive Procedures

Participants:

B. Ackerman
M. Berger
W. Biederman
S. I. Botkin
F. Cosenza
H. Feinberg
J. Fonseca
A. S. Guttelman
J. M. Horowitz
N. H. Kamen
S. Kotler
S. J. Lurie
I. R. Morton
P. L. Rubin
S. Tangredi
I. M. Skolnick
J. Teitelbaum
B. Wasserman
R. Ziegler

Saint Louis University
School of Dentistry
St. Louis, Mo.
(Kenneth C. Marshall,
Director, Division of
Orthodontics)

Clinical Orthodontics, Graduate Orthodontic Department, St. Louis University

Participants:

John Barton
Robert Callahan
Ruth Carter
Peter Cassidy
Leo Groth
Bruce Holman
Joseph Jacobs
Thomas King
William Krieg
Phillip Levens
Melvin Paxton
Anthony Spadafore

The University of Tennessee
College of Dentistry
Memphis, Tenn.
(Faustin N. Weber,
Professor and Head of Department of Orthodontics)

Graduate Orthodontics at the University of Tennessee

Participants:

Ralph E. Braden
George W. Huckaba
Walter C. Sandusky, Jr.
Robert F. Taylor
Faustin N. Weber
Robert M. Williams

Tufts University
School of Dental Medicine
Boston, Mass.
(Herbert I. Margolis,
Director of Orthodontics)

Reports of Progress of Patients Treated in the Department of Graduate Orthodontics, Class of 1958

Participants:

Robert B. Braun
Donald A. Bronsky
Michael M. Derrick
Joseph G. DiStasio
Ross I. V. Geldart
Russi Gheewalla
Edward S. Miller
Robert B. Moyel
Kenneth L. Sagrans
George Schneider

ROUND-TABLE DISCUSSION LUNCHEON. Horace P. Clark, Chairman.

Subjects:

1. Serial Extraction Therapy
2. Extraoral Therapy
3. Relapse Cases
4. Cephalometric Radiography
5. General Discussion

First Appliance Therapy Panel Session
and
First Limited Attendance Clinic Session
Second Appliance Therapy Panel Session
and
Second Limited Attendance Clinic Session.

Appliance Therapy Panel Questions:

1. How do you move maxillary canines distally in first bicuspid extraction cases?
2. How do you reinforce maxillary anchorage in the retraction of maxillary canines?
3. How do you maintain anchorage in the mandibular arch while exerting traction posteriorly on maxillary teeth?
4. How do you move teeth vertically to establish desired occlusal levels in deep or excessive overbite cases?

Panelists:

Group 1 (Presiding Chairman—Richard A. Lowy)

1. Paul D. Lewis, Clinical Associate in Orthodontics, University of Washington, Seattle, Washington
2. Harry L. Bull, Jersey City, New Jersey
3. Ralph E. Braden, Instructor in Orthodontics, University of Tennessee, Memphis, Tennessee
4. G. Vernon Fisk, Toronto, Canada

Group 2 (Presiding Chairman—Ernest L. Johnson)

1. Joseph R. Jarabak, Chicago, Illinois
2. H. K. Terry, Miami, Florida
3. Howard Yost, Grand Island, Nebraska
4. William L. Wilson, Boston, Massachusetts

LIMITED ATTENDANCE CLINICS.

Faustin N. Weber, Chairman

Clinician	*Title of Clinic*
Ben L. Herzberg assisted by Frank Klepacki	Anchorage Preparation in the Tweed Therapy in Orthodontics
Boyd W. Tarpley	Labio-Lingual Technic Especially Applicable in Five Specific Cases
Harvey Jenkins	The Mono-block Appliance
Samuel Pruzansky	Orthodontics for the Cleft Palate Child
T. M. Graber	Interpretation in Cephalometric Radiography
James Jay	Total Extraoral Force Therapy
William A. Elsasser	The Advantages of Linear Analysis of the Human Profile
Robert B. Parkes	A Demonstration of the Differential Force Technique Developed by P. R. Begg, Adelaide, Australia
Ernest H. Hixon	Interpretation in Cephalometric Radiography
William L. Lawther	A Roentgenographic Study of the Temporomandibular Joint
Robert E. Moyers	The Musculature as a Factor in Clinical Success
Richard E. Barnes	Appliance Therapy Used in the Expansion of the Deciduous Arches and Results as Evaluated in the Permanent Dentition

Sheldon W. Rosenstein	Cleft Palate Therapy
Robert M. Ricketts	The Contemporary Use of Clinical Cephalometrics
Glenn E. Jackson	Functional Occlusion as It Relates to the Temporomandibular Joints
Raymond C. Thurow	Technical Aspects of Cephalometric Radiography
John T. Lindquist	Indirect Band Technique
William S. Parker	Extraoral Therapy as One Part of the Treatment of Certain Malocclusions
William H. Olin	Cleft Palate Therapy
Marvin C. Goldstein	Practical Orthodontic Procedures for the Adult Patient
J. B. Franklin	Technical Consideration in Cephalometric Roentgenography
Walter Mosmann and Brainerd F. Swain	Application of Dr. Harry Bull's Technic in the Correction of Class II, Division 1 Malocclusion
Harry Sicher	Biology of Cranial and Facial Growth
Walter C. Sandusky, Jr.	Temporomandibular Joint Radiography Utilizing Predetermined Condylar Inclinations
James C. Toothaker	Unerupted Teeth
Joseph R. Jarabak and Robert T. Solinski Santo Signorio	Angulated Bracket Therapy by Direct or Indirect Method

PRESIDENT'S RECEPTION AND BANQUET HONORING DR. AND MRS. FRANKLIN A. SQUIRES.

Cocktails. Hosts: The Northeastern Society of Orthodontists

THURSDAY, MAY 1
Scientific Meeting

(Presiding—Joseph D. Eby, Past-President, American Association of Orthodontists)

RE-EVALUATING OUR RELAPSES. Robert R. McGonagle, Euclid, Ohio.

SYMPOSIUM ON EXTRAORAL THERAPY.

Introduction:

A Present-Day Evaluation of the Analysis and Therapy of the Extraoral Anchorage Application in the Treatment of Class II Malocclusions. Silas J. Kloehn, Appleton, Wisconsin.

Collaboration:

Total Extraoral Therapy. James Jay, New York, New York, Assistant Professor of Orthodontics, Columbia University.

The Use of Extraoral Anchorage as a Clinical Aid to Reduce or Avoid the Need for Intermaxillary Elastic Traction. Waldo O. Urban, Evanston, Illinois, Associate in Orthodontics, Northwestern University.

REPORT ON THE ROENTGENOGRAPHIC CEPHALOMETRIC WORKSHOP.

Résumé of the Workshop and Limitations of the Technic. J. A. Salzmann, New York, New York, Chairman of the Workshop Committee.

Requisites and Criteria of the Technic. T. M. Graber, Chicago, Illinois, Consultant.

Validation of the Technic. Wilton M. Krogman, Philadelphia, Pennsylvania, Consultant.

SECOND BUSINESS MEETING.

Installation of Officers.

Presentation of the Past-President's Key to Franklin A. Squires by A. C. Broussard.

OFFICERS

President: Franklin A. Squires, White Plains, New York

President-Elect: C. Edward Martinek, Detroit, Michigan

Vice-President: George H. Siersma, Denver, Colorado

Secretary-Treasurer: Earl E. Shepard, St. Louis, Missouri

BOARD OF DIRECTORS

The Board of Directors consists of officers of the Association, Chairmen of elected committees, and directors elected by constituent societies.

Officers

Franklin A. Squires	George H. Siersma
C. Edward Martinek	Earl E. Shepard

Chairmen of Elected Committees

Herbert V. Muchnic	J. William Adams	Ralph G. Bengston
John W. Richmond	Philip E. Adams	Aldys J. Gray
Frank P. Bowyer	Malcolm R. Chipman	D. Robert Swinehart
Robert E. Moyers	J. A. Salzmann	William A. Giblin

Directors of Constituent Societies

Elmer F. Bay	*Director*	Central Section
G. Hewett Williams	*Alternate*	Central Section
Robert E. Wade	*Director*	Great Lakes Society
Harlow L. Shehan	*Alternate*	Great Lakes Society
George M. Anderson	*Director*	Middle Atlantic Society
Paul V. Reid	*Alternate*	Middle Atlantic Society
Norman L. Hillyer	*Director*	Northeastern Society
Richard Lowy	*Alternate*	Northeastern Society
Richard Railsback	*Director*	Pacific Coast Society
Warren Kitchen	*Alternate*	Pacific Coast Society
Ernest T. Klien	*Director*	Rocky Mountain Society
Don V. Benkendorf	*Alternate*	Rocky Mountain Society
Edgar Baker	*Director*	Southern Society
Boyd W. Tarpley	*Alternate*	Southern Society
Nathan G. Gaston	*Director*	Southwestern Society
J. Victor Benton	*Alternate*	Southwestern Society

Librarian: Charles R. Baker, Evanston, Illinois

Historian: Leuman M. Waugh, New York, New York

*ELECTED COMMITTEES**

Budget

Herbert V. Muchnic, '60 *Chairman*
435 North Roxbury Dr.
Beverly Hills, California
George H. Siersma, '58
Cecil J. Muller, '59

Publications Board

John W. Richmond, '59, *Chairman*
Brotherhood Bldg.
Kansas City, Kansas
Leigh C. Fairbank, '58
B. F. Dewel, '60

Public Relations

Frank P. Bowyer, '58, *Chairman*
Medical Arts Bldg.
Knoxville, Tennessee
Eugene J. Kelly, '59
Frederick R. Aldrich, '60

Education

Robert E. Moyers, '58, *Chairman*
School of Dentistry
University of Michigan
Ann Arbor, Michigan
Boyd W. Tarpley, '59
Edward J. Forrest, '60

Research

J. William Adams, '59, *Chairman*
707 Banker's Trust Bldg.
Indianapolis, Indiana
William B. Downs, '60
Herbert I. Margolis, '61
Faustin N. Weber, '62
Richard A. Riedel, '58

Convention Planning

Malcolm R. Chipman, '58, *Chairman*
Paulsen Medical Dental Bldg.
Spokane, Washington
E. C. Lunsford, '59
B. Edwin Erikson, '60
J. Lyndon Carman, '61
David Mossberg, '62

Public Health

J. A. Salzmann, '60, *Chairman*
654 Madison Ave.
New York, New York
Herbert K. Cooper, '58
Oren A. Oliver, '59
L. Bodine Higley, '61
Ernest L. Johnson, '62

Relief

Ralph G. Bengston, '59, *Chairman*
25 East Washington St.
Chicago, Illinois
Eugene E. West, '58
Gerald A. Devlin, '60

Laws and Infractions

Aldys J. Gray, '58, *Chairman*
5225 Wilshire, Blvd.
Los Angeles, California
Holly Halderson, '59
John R. McCoy, '60
William H. Oliver, '61
Henry C. Beebe, '62

Military Affairs

D. Robert Swinehart, '60, *Chairman*
Medical Arts Bldg.
Baltimore, Maryland
H. K. Terry, '58
William A. Flesher, '59
Paul V. Reid, '61
Hugh A. Simms, '62

*Elected committees chosen at the 1958 meeting will be announced later.

CONSTITUTION AND BY-LAWS

Philip E. Adams, '60, *Chairman*
170 Marlborough St.
Boston, Massachusetts
Donald C. MacEwan, '58
Oren A. Oliver, '59

JUDICIAL COUNCIL

William A. Giblin, '58, *Chairman*
85 Park St.
Montclair, New Jersey
John R. Abel, '59
Nathan G. Gaston, '60

NOMINATING COMMITTEE

President Franklin A. Squires and Directors of the Constituent Societies

APPOINTED COMMITTEES

PROGRAM

John R. Thompson, *Chairman*
55 E. Washington St.
Chicago 2, Illinois
Faustin N. Weber
Ernest L. Johnson
Richard A. Lowy
William R. Joule
Horace P. Clark
Scott T. Holmes
J. William Adams *(Ex-officio, Research)*

NECROLOGY

Ernest N. Bach, '59, *Chairman*
Professional Bldg.
Toledo, Ohio
Wilbur J. Prezzano, '58
William S. Smith, '60

INTER-RELATIONS

Gerald Franklin, '58, *Chairman*
1414 Drummond St.
Montreal, Quebec, Canada
Stephen C. Hopkins, '59
Robert H. W. Strang, '60

NOMENCLATURE

James D. McCoy, '60, *Chairman*
132 Lasky Dr.
Beverly Hills, California
C. F. Stenson Dillon, '58
B. F. Dewel, '59

CREDENTIALS

C. Sterling Conover, *Chairman*
1 E. 57th St.
New York, New York
Paul A. Deems
Howard Yost

GOLDEN ANNIVERSARY LUNCHEON

Charles R. Baker, *Chairman*
636 Church St.
Evanston, Illinois
Henry F. Hoffman
Earl W. Swinehart

SPECIAL COMMITTEES

Committee on Roentgenographic Cephalometric Workshop

Jacob A. Salzmann, *Chairman*

Allan G. Brodie, Sr. — L. Bodine Higley

Wilton M. Krogman, *Consultant*

T. M. Graber, *Consultant*

Program Manual Committee

C. Edward Martinek, *Chairman*

George M. Anderson — Henry C. Beebe

Samuel D. Gore — Reuben L. Blake

George W. Hahn

LOCAL ARRANGEMENTS COMMITTEES

Honorary Chairmen

Alfred P. Rogers — Leuman M. Waugh

Joseph D. Eby — Lowrie J. Porter

Walter H. Ellis — Philip E. Adams

Wilbur J. Prezzano, *Chairman*

Henry C. Beebe, *Vice-Chairman*

Ashley E. Howes, *Treasurer*

Walter R. Bedell — Richard A. Lowy

Alfred J. Braida — David Mossberg

Horace P. Clark — Walter H. Mosmann

John J. Dolce — Edward G. Murphy

Irving Grenadier — J. A. Salzmann

Norman L. Hillyer — Henry Spiller

William R. Joule — Donald B. Waugh

Faustin N. Weber

Registration

David Mossberg, *Chairman*

Earl E. Shepard, *Co-Chairman*

Harry V. Borg — Nicholas A. Ippolito

Walter C. Chapin — Edward I. Silver

Maynard E. Cohen — Everett A. Tisdale

Herbert H. Ernst — Milton S. Tucker

Barnett Frank — Clinton B. Van Natta

Reception

Walter R. Bedell, *Chairman*

Fred R. Blumenthal — Alonzo W. McClelland

Stanley M. Dow — Augustave Neuber

Paul Geoffrion — Frank Nicolai

C. Douglas Hoyt — Sidney E. Riesner

Donald Hutchinson
Lewis E. Jackson
William C. Keller
John W. Ross
Arthur C. Totten
Raymond L. Webster
Glenn F. Young

PRESS

J. A. Salzmann, *Chairman*
Joseph D. Eby
Harvey C. Pollock
Brainerd F. Swain

LADIES' ENTERTAINMENT

Norman L. Hillyer, *Co-Chairman*
Mrs. Norman L. Hillyer, *Co-Chairman*

Executive Committee

Mrs. Herbert H. Ernst
Mrs. Wilbur J. Prezzano
Mrs. Franklin A. Squires
Mrs. Donald B. Waugh

Committee

Dr. Josephine M. Abelson
Mrs. Philip E. Adams
Mrs. George M. Anderson
Mrs. Ernest N. Bach
Mrs. Robert M. Bailey, III
Mrs. Henry C. Beebe
Mrs. Alfred J. Braida
Mrs. Horace P. Clark
Mrs. C. Sterling Conover
Mrs. John J. Dolce
Mrs. Stanley M. Dow
Mrs. Clifford G. Glaser
Mrs. Irving Grenadier
Mrs. Ashley E. Howes
Mrs. Donald Hutchinson
Mrs. William R. Joule
Mrs. Richard A. Lowy
Mrs. C. Edward Martinek
Mrs. David Mossberg
Mrs. Walter H. Mosmann
Mrs. Edward G. Murphy
Mrs. Donald D. Osborn
Mrs. Lowrie J. Porter
Mrs. J. A. Salzmann
Mrs. Earl E. Shepard
Mrs. George H. Siersma
Mrs. Henry Spiller
Mrs. Brainerd F. Swain
Mrs. John R. Thompson
Mrs. Everett A. Tisdale
Mrs. Leuman M. Waugh
Mrs. Faustin N. Weber
Mrs. Raymond L. Webster

PROPERTIES

Walter H. Mosmann, *Chairman*
Lawrence L. Albert
Maurice M. Gershater
M. Albert Munblatt
Henry A. Sturman

INFORMATION

Henry Spiller, *Chairman*
James Jay
Harry E. Jerrold
John H. Madden

COMMERCIAL EXHIBITS

Irving Grenadier, *Chairman*

Michael J. Maxian — Adrien W. Mercier

Walter G. Spengeman

TABLE CLINICS

William R. Joule, *Chairman*

Theodore Adler — Francis A. Haugh
Robert M. Cole — Frank Kanter
Herbert S. Fine — Bernard H. Schanbam
Abraham I. Fingeroth — S. William Singer

Martin S. Strickler

ROUND-TABLE LUNCHEON DISCUSSION

Horace P. Clark, *Chairman*

Arthur V. Greenstein — Jerome H. Trier
Donald D. Osborn — Clifford L. Whitman

LIMITED ATTENDANCE CLINICS

Faustin N. Weber, *Chairman*

Robert H. Alexander — William G. Houghton
Norman D. Allen — Joseph Luban
Charles J. Goldthwaite — Otto J. Sorenson
Morton Heide — Alexander Sved

Will M. Thompson, Jr.

ENTERTAINMENT

John J. Dolce, *Co-Chairman*
Edward G. Murphy, *Co-Chairman*
Donald B. Waugh, *Co-Chairman*

Arthur S. Ash — Arnold Langwick
Bert Ballin — Francis J. Loughlin
Saul M. Bien — John J. Murray
David A. Dragiff — Lowrie J. Porter
Ulysses Erdreich — R. C. Sturtevant
Frank P. Gilley — Francis J. Tessier

THE AMERICAN BOARD OF ORTHODONTICS

The annual session of the American Board of Orthodontics was held April 22 through April 26, 1958, at the Commodore Hotel, New York, New York. The Board consists of the following:

Lowrie J. Porter, *President*——New York, New York
William R. Humphrey, *Vice-President*——Denver, Colorado
J. A. Salzmann, *Treasurer*——New York, New York
Wendell L. Wylie, *Secretary*——San Francisco, California
L. Bodine Higley, *Director*——Chapel Hill, North Carolina
B. F. Dewel, *Director*——Evanston, Illinois
Frank P. Bowyer, *Director*——Knoxville, Tennessee

THE ALBERT H. KETCHAM MEMORIAL

Established by the American Board of Orthodontics in collaboration with the American Association of Orthodontists in 1936.

Awarded to:

1937	John Valentine Mershon	1949	William K. Gregory
1938	Alfred Paul Rogers	1951	Benno E. Lischer
1939	Milo Hellman	1952	James David McCoy
1940	George Wellington Grieve	1953	Spencer R. Atkinson
1941	Frederick Bogue Noyes	1954	Charles Reeder Baker
1942	Harry E. Kelsey	1955	Joseph E. Johnson
1944	B. Holly Broadbent	1956	Leuman M. Waugh
1946	Raymond Clair Willett	1957	Oren A. Oliver
1948	Clinton C. Howard	1958	Joseph Davis Eby
			H. C. Pollock, Sr.

GOLDEN ANNIVERSARY GROUP

1903	Charles R. Baker	636 Church St., Evanston, Ill.
1902	Hugh T. Berkey	Wayne Pharmacal Bldg., Ft. Wayne, Ind.
1906	Sydney W. Bradley	142 Laurier Ave. West, Ottawa, Canada
*1898	Frank M. Casto	801 Silverado St., LaJolla, Calif.
*1903	Harold Chapman	6 Upper Wimpole St., W. 1, London, England
1904	Leslie Merle Christie	1835 Eye St., N.W., Washington, D. C.
*1896	Alfred M. Desnoes	389 Brower Ave., Rockville Centre, N. Y.
1903	Walter H. Ellis	333 Linwood Ave., Buffalo, N. Y.
1898	Frank B. Evans	Central Trust Bldg., Altoona, Pa.
1907	William E. Flesher	Medical Arts Bldg., Oklahoma City, Okla.
*1898	Jacob A. Gorman	337 Audubon St., New Orleans, La.
1904	Arthur V. Greenstein	1 West 81st St., New York 84, N. Y.
1898	Henry F. Hoffman	223 Physicians Bldg., Boulder, Colo.
1904	Andrew F. Jackson	Medical Arts Bldg., Philadelphia, Pa.
*1898	Charles R. Jackson	The White Sands, LaJolla, Calif.
*1898	J. DeWolf Jackson	223 Coyle Place, San Antonio, Tex.
1905	John L. Kaufman	6 Hutchinson Court, Great Neck, N. Y.
1897	Elmer E. Lampert	Professional Bldg., Elgin, Ill.
*1905	William Walter Leslie	4222 Van Ness Blvd., Fresno 4, Calif.
1907	Samuel J. Lewis	2901 So. Westnedge Ave., Kalamazoo, Mich.
*1900	Benno E. Lischer	313 No. Rock Hill Rd., Webster Groves 19, Mo.
1903	Harry L. Logan	Trust Company Bldg., Mt. Carmel, Pa.
†*1899	Lloyd S. Lourie, Sr.	333 15th St., Santa Monica, Calif.
1899	Frederick W. MacDonald	David Whitney Bldg., Detroit, Mich.
1906	James David McCoy	132 Lasky Dr., Beverly Hills, Calif.
1900	Edward C. Morrison	42 So. Alward Ave., Basking Ridge, N. J.
*1895	Frederick B. Noyes	1512 North K St., Lake Worth, Fla.

*Retired.
†Charter Member, A. A. O.

*1904	Ernest W. Patton	707 Euclid Ave., Birmingham 9, Ala.
1903	Jay N. Pike	Medical Arts Bldg., Minneapolis, Minn.
1907	Harvey Carlyle Pollock, Sr.	40 Fair Oaks, Clayton, Mo.
*1896	Alfred P. Rogers	Shore Road, Box 673, Chatham, Mass.
1905	Simon W. Sheffield	2021 Grand Concourse, New York, N. Y.
*____	Frederick R. Stathers	119 So. Oak St., Clarksburg., W. Va.
1902	Robert H. W. Strang	114 State St., Bridgeport, Conn.
1905	William H. Street	Medical Arts Bldg., Richmond, Va.
1902	Earl W. Swinehart	Medical Arts Bldg., Baltimore, Md.
1902	Herbert W. Taylor	510 Madison Ave., New York., N. Y.
*____	John E. Taylor	2008 LaBrae Terrace, Hollywood 46, Calif.
1907	Leonard T. Walsh	422 Thatcher Bldg., Pueblo, Calif.
*1900	Leuman M. Waugh	931 Fifth Ave., New York, N. Y.
1899	Oliver W. White	David Whitney Bldg., Detroit, Mich.

New Members—1958:

1907	Perry B. Clark	Andover, Ohio
1908	Joseph D. Eby	121 East 60th St., New York 22, N. Y.
1908	Arthur L. Morse	29 Commonwealth Ave., Boston, Mass.
1907	Joseph L. Selden	Heyburn Bldg., Louisville, Ky.
*____	Bernard W. Weinberger	40 West 72nd St., New York 23, N. Y.

In Memoriam

GOLDEN ANNIVERSARY GROUP

DECEASED

1901	C. M. McCauley	May 7, 1957
1906	Ralph Waldron	July 24, 1957
1898	Orville Van Deusen	August 17, 1957
1901	Walter C. Miner	August 27, 1957
1892	E. Santley Butler	January 20, 1958
1899	Abram Hoffman	February 24, 1958

THE AMERICAN ASSOCIATION OF ORTHODONTISTS

*(*Before name indicates deceased)*

Year	*Presidents*	*Secretaries*	*Places of Meeting*
1901	*Edward H. Angle	Milton T. Watson	St. Louis
1902	*Edward H. Angle	Milton T. Watson	Philadelphia
1903	*Milton T. Watson	Anna Hopkins	Buffalo
1904	Lloyd S. Lourie	Anna Hopkins	St. Louis (Int'l Dental Cong.)
1905	Lloyd S. Lourie	Anna Hopkins	Chicago

1906	*R. Ottolengui	Frederick S. McKay	New York
1907	*Herbert A. Pullen	Frederick S. McKay	Detroit
1908	*Charles A. Hawley	Frederick S. McKay	Washington
1909	Frank M. Casto	F. C. Kemple	Cleveland
1910	*B. Frank Gray	F. C. Kemple	Denver
1911	Alfred P. Rogers	F. C. Kemple	Boston
1912	*Milton T. Watson	F. C. Kemple	Chicago
1913	B. E. Lischer	W. E. Walker	Chicago
1914	*Guy B. Hume	F. C. Kemple	Toronto
1915	*Frederick C. Kemple	W. E. Walker	San Francisco
1916	*Frederick C. Kemple	F. M. Casto	Pittsburgh (Int'l Dental Cong.)
1917	*M. N. Federspiel	F. M. Casto	Excelsior Springs
1918	*D. Willard Flint	F. M. Casto	Chicago
1919	O. W. White	F. M. Casto	St. Louis
1920	*John V. Mershon	F. M. Casto	Chicago
1921	*J. Lowe Young	Ralph Waldron	Atlantic City
1922	*Martin Dewey	Ralph Waldron	Chicago
1923	*Burt Abell	W. H. Ellis	Chicago
1924	Ralph Waldron	W. H. Ellis	Kansas City
1925	*Clinton C. Howard	W. H. Ellis	Atlanta
1926	*William C. Fisher	W. H. Ellis	New York (First Int'l Ortho. Cong.)
1927	Joseph D. Eby	Charles R. Baker	Chicago
1928	Walter H. Ellis	Charles R. Baker	Buffalo
1929	*Albert H. Ketcham	Charles R. Baker	Estes Park
1930	Oren A. Oliver	Charles R. Baker	Nashville
1931	*Harry E. Kelsey	Claude R. Wood	St. Louis
1932	Charles R. Baker	Claude R. Wood	Toronto
1933	W. E. Flesher	Claude R. Wood	Oklahoma City
1935	L. M. Waugh	Claude R. Wood	New York
1936	H. C. Pollock	Claude R. Wood	St. Louis
1937	P. G. Spencer	Claude R. Wood	Chicago
1938	James D. McCoy	Claude R. Wood	Los Angeles
1939	*Frank A. Delabarre (Posthumously)		
1939	*Harry A. Allshouse, Jr.	Claude R. Wood	Kansas City
1940	*William A. Murray	Claude R. Wood	Chicago
1941	*Henry U. Barber, Jr.	Max E. Ernst	New York
1942	Claude R. Wood	Max E. Ernst	New Orleans (Inter-American Cong.)
1944	*James A. Burrill	Max E. Ernst	Chicago
1946	Archie B. Brusse	Max E. Ernst	Colorado Springs
1948	Earl G. Jones	Max E. Ernst	Columbus, Ohio
1949	Lowrie J. Porter	George R. Moore	New York
1950	Max E. Ernst	George R. Moore	Chicago
1951	Joseph E. Johnson	George R. Moore	Louisville

1952	Bernard G. de Vries	George R. Moore	St. Louis
1953	Brooks Bell	Franklin A. Squires	Dallas
1954	*George R. Moore (Posthumously)		
1954	James W. Ford	Franklin A. Squires	Chicago
1955	Frederick T. West	Franklin A. Squires	San Francisco
1956	Philip E. Adams	Franklin A. Squires	Boston
1957	A. Claude Broussard	Earl E. Shepard	New Orleans

In Memoriam

Members of the American Association of Orthodontists who have died since the 1957 session

Harry E. Abelson	New York City, New York
Berneice L. Barkelew	Riverside, California
E. Santley Butler	New Rochelle, New York
W. R. Dinham	Portland, Oregon
John T. Fleming	Bridgeport, Connecticut
Abram Hoffman	Fort Lauderdale, Florida
Eugene J. Kelly	Trenton, New Jersey
Stephen G. Lee, Jr.	Short Hills, New Jersey
C. M. McCauley	Beverly Hills, California
Walter C. Miner	Meredith, New Hampshire
Paul A. Simon	Konstanz, Germany
Thomas D. Speidel	Minneapolis, Minnesota
J. Mark Trach	Wheeling, West Virginia
Orville Van Deusen	Winchester, Virginia
Ralph Waldron	Winter Haven, Florida
Edmund H. Wuerpel	Wellesley Hills, Massachusetts

COMMERCIAL EXHIBITS

A representative group of manufacturers and dealers specializing in orthodontic supplies and related fields had exhibits at the meeting. Due to

limitations in space, the Committee regrets that not all of the companies requesting exhibit space could be accommodated. Booths were reserved by the following exhibitors:

Julius Aderer Inc., Long Island City, New York
Baker & Co., Inc., East Newark, New Jersey
Betta Orthodontic Supplies Inc., New York, New York
Cettle Studios, New York, New York
Coreco Research Corporation, New York, New York
Dental Perfection Co., Glendale, California
Encyclopedia Brittanica, Inc., New York, New York
William Getz Corporation, Chicago, Illinois
Hamilton Manufacturing Co., Two Rivers, Wisconsin
The Klippert Company, Napa, California
Lactona, Inc., St. Paul, Minnesota
J. B. Lippincott Co., Philadelphia, Pennsylvania
Medical Dental Scientific Photographic Equip Co., New York, New York
The C. V. Mosby Company, St. Louis, Missouri
The National Biological Lab., Inc., Falls Church, Virginia
J. M. Ney Company, Hartford, Connecticut
Pycope Inc. Block Drug Co., Jersey City, New Jersey
Rocky Mountain Metal Products Co., Denver, Colorado
Stratford Cookson Company, Philadelphia, Pennsylvania
T. P. Laboratories, LaPorte, Indiana
Gilbert W. Thrombley, New York, New York
Unitek Corporation, Pasadena, California
B. F. Wehmer, Park Ridge, Illinois
S. S. White Dental Manufacturing Co., Philadelphia, Pennsylvania
Wilkinson Company, Santa Monica, California
William Gold Refining Company, Buffalo, New York

PRESIDENT'S RECEPTION AND BANQUET

THE cocktail reception given by the Northeastern Society of Orthodontists on Wednesday evening, preceding the banquet honoring Dr. and Mrs. Franklin A. Squires, was exceedingly well attended. It was obvious that the tone of friendliness and gaiety at the reception predicted a successful dinner-dance.

The Grand Ballroom of the Hotel Commodore offered a lovely setting for this affair. Two tiers of head tables were required to seat the many honored guests. In the middle were Dr. Lowrie Porter (who acted as master of ceremonies) and Mrs. Porter. Dr. Porter's introductions of the head table guests were exceedingly well presented, and his humorous anecdotes about many of those he introduced brought a warmth of feeling and closeness to those who did not know the men personally beforehand.

The Yale Whiffenpoofs were most entertaining in their renditions of several songs, topped off with the famous "Whiffenpoof Song."

During dinner a trio supplied soft music for background, and when the dancing started the full R.C.A. Victor recording orchestra led by Tony Cabot supplied variations of rhythm which pleased both old and young.

When the wee hours of early morning approached and the music ended with "Good Night, Ladies," all felt that the evening had been a great success.

This fine entertainment was under the direction of the Entertainment Committee, of which John J. Dolce, Edward G. Murphy, and Donald B. Waugh served as co-chairmen.

ROUND-TABLE LUNCHEON

A NEW plan was inaugurated this year for the Round-Table Luncheon. Discussions were limited to "Relapse in Orthodontics," "Serial Extraction," "Cephalometrics," "Extraoral Therapy," and a fifth subject termed "General Discussion." At these tables the moderator or anyone else at the table could talk about anything he wished. The reason for this last subject was to take care of anyone not interested in any of the first four. Men with long experience in the profession were selected as leaders. Their job was to act as guides in the general discussion of the men at the tables. They were to bring out the ideas from those who were not expressing themselves and to limit the other persons who were expressing themselves too much.

From the Committee's point of view, this worked out very well, as there was no difficulty in arranging tables and everyone seemed to be satisfied.

The Round-Table Luncheon was well handled by the Round-Table Luncheon Discussion Group. The Committee consisted of Horace P. Clark (Chairman), Arthur V. Greenstein, Donald D. Osborne, Jerome H. Trier, and Clifford L. Whitman.

LIMITED ATTENDANCE CLINICS

THE limited attendance clinics were given on Wednesday afternoon in two sessions. These sessions ran concurrently with the two appliance therapy panel sessions.

The Program Committee arranged for one-half of the members to attend the appliance therapy panel while the other half attended a limited attendance clinic of their choice.

All limited attendance clinics were well attended at both sessions. A wide range of topics was discussed at the various clinics. The subjects ranged from basic considerations of the biology of cranial and facial growth through the subjects of orthodontic diagnosis, appliance design and manipulation, and the management of difficult malocclusions, to the prediction of clinical success as determined by the musculature.

Faustin N. Weber, Chairman
Limited Attendance Clinics

MEETING OF THE AMERICAN BOARD OF ORTHODONTICS

THE American Board of Orthodontics held its annual meeting of five days in New York, New York, April 22 to 26, 1958, for the purpose of conducting routine business and examining candidates aspiring to certification.

The unanimous choice for the new director to be appointed to the Board was Dr. Paul V. Reid of Philadelphia, Pennsylvania. Dr. Reid replaces Dr. Lowrie J. Porter, whose seven-year term of office expired at the time of the New York meeting. Dr. Porter served as president of the Board during his final year of service and as vice-president the year before.

In the final session the Board adopted by acclamation the following tribute:

> The Directors of the Board wish at this time to officially recognize the valuable services to the Board of our retiring President, Dr. Lowrie J. Porter. During his membership on the Board he has given unstintingly of his time and energy and has shown unusual foresight and wisdom in the conduct of his office. He and his gracious wife, Mrs. Porter, contributed greatly at all times to the social integration of the Board, which made the tasks of all of us much happier. We extend our thanks to him at this time with the knowledge and appreciation that we have gained a great and true friend, and we wish him continued success in all his undertakings in the future.

Certification was granted to thirty candidates as follows:

Henry Adelson
Harry G. Barrer
Elmer F. Bay
Arthur J. Block
Eugene F. Butori
William A. Elsasser
John Emanuel
Louis Feldstein
Harry S. Galblum
Eugene L. Gottlieb
Adeline S. Guttelman
Rolenzo A. Hanes
Alfred Jaffe
Kenneth S. Kahn
Howard M. Lang
Gerald P. Larson
Abraham H. Lubowitz
Harry M. McLinn
Adrien W. Mercier
Robert E. Moyers
George Nagamoto
Eugene M. Nelson
Arthur Raeder
Bert B. Schoeneman
John H. Sibley
Charles H. Smith
Brainerd F. Swain
Leo Taft
Elbert M. Upshaw
Clifford J. Willcox

Department of Orthodontic Abstracts and Reviews

Edited by
DR. J. A. SALZMANN, NEW YORK CITY

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmann, 654 Madison Avenue, New York City

The Mouth-Breather. By E. Gwynne-Evans and C. F. Ballard. *Brit. M. J.*, No. 5053, Nov. 9, 1957.

Mr. E. Gwynne-Evans, surgeon in charge of the upper respiratory diseases clinic at the Victoria Hospital for Children, Chelsea, stated that nasal breathing depended on both the patency of the nasal passages and the efficiency of the oropharyngeal musculature. Failure of the oropharyngeal muscles is a more common cause of mouth breathing in children than nasal obstruction due to enlargement of the adenoids. Swelling of the anterior nasal mucosa from allergic vasomotor rhinitis also is a more frequent cause of mouth breathing in children than adenoidal enlargement.

In infants and young children there was a very strong natural instinct toward nasal breathing, and, provided that serious degrees of nasal obstruction were excluded or corrected, the propensity to nasal breathing tended to overcome failure of the oropharyngeal muscles. In the vast majority of children with the so-called adenoid facies the adenoids were not at fault. These children with long faces, protruding upper teeth, receding chins, and apparently vacant expressions did not suffer from nasal obstruction and were not mentally dull; nor would they develop any permanent nasal, facial, or oral deformities. Their facies was a normal type of natural physiognomy related to hereditary factors rather than to any structural defects.

Professor C. F. Ballard said that this facies was a normal phase in the development of a certain type of child and that it was probably an ectomorphic characteristic, possibly related to other features, such as asthma and the periodic syndrome. The facies was not influenced by any type of remedial exercise or oral appliance; in fact, the unnecessary institution of these was very likely to lead to frustration and mental distress in both the child and his parents.

There was no special morphologic type associated with mouth breathing. Most children with the "open-lip" type of oral posture did not breathe through their mouths, while on the other hand some with a "closed-lip" posture did so. Oral configuration was unrelated to the state of the adenoids, and enlargement of the adenoids was never responsible for deformities of the bone structure of the mouth.

In the management of the mouth-breather the first step was to look for any obvious and definite causes of nasal obstruction and to treat them if they were present. If there was no obstruction—and there seldom was—then there was no need to embark on any treatment in the young child. Orthodontic treatment might be necessary later, but usually not until around 12 years of age. The majority of children with an adenoid facies would eventually grow out of it.

The Biochemistry and Physiology of Bone. Edited by Geoffrey H. Bourne, London Hospital Medical College, London, England. New York, Academic Press Inc., Publishers, 1956. Illustrated. 875 pages.

There are twenty-eight contributors to this book, among whom are some of the outstanding physiologists, anatomists, and histologists in the United States, the British Isles, Canada, Sweden, and Ireland. The general anatomy and histology of bone are discussed by J. J. Pritchard of Queen's University, Belfast. It is pointed out here that the rearrangement of bone leads to enlargement of the Haversian canals and Haversian systems. Where such rearrangement goes on, a cement "reversal" line is in evidence. This is taken to indicate that some of the interstitial lamellar systems are remnants of once complete Haversian systems.

Growth of the skull is presented in a chapter by G. H. Bell of St. Andrews University, Scotland, who warns against looking for complete explanation of bone growth in terms of applied forces. The mechanical engineering problems of bone growth are discussed. Attention is given to the ground substance and collagen fibers of connective tissue. The biophysics of bone are discussed. Osteoblasts are divided into active and resting ones. The relationship between osteoblasts and osteoclasts, it now appears, is not as simple as formerly believed.

Pritchard, writing on the osteoblasts, arrives at the following conclusion: "The cellular transformations mentioned, especially the osteoblast-reticulum cell-osteoclast transformations mediate the reactions of bone to stimuli of all kinds, as they are the proximate cause of the changing patterns of bone formation and destruction into which all bony reactions can be analyzed."

The distribution and role of phosphatase in bone are treated in some detail. It is now generally believed that phosphatase is not indispensable to bone production in its entirety but is concerned mainly with the production of the organic matrix.

In their chapter on "Autoradiographic Studies of Formation and Growth," Leblond and Greulich assert that the early stages of development occur by deposition of salts throughout the matrix. This they term "interstitial growth." Later growth, however, is accretional, since the minerals are deposited only in the new matrix, present next to the osteoblastic layers. At present it is still unknown how the bone matrix holds the mineral crystals. There is still much biochemical and biophysical investigation to be done. The growth of bone, states Saissons of England, presents fluctuations in rate and cessation which are associated with closure of the epiphyses. Bones can be modified by pressure and tension loads beyond the limits that can be physiologically sustained by the respective bones. Compression of epiphyseal plates and stapling around epiphyseal peripheries are now employed. The effects of irradiation are discussed, as are various other factors. Chapters are presented also on nutritive and endocrine effects on bone growth and bone resorption. A detailed index is included which makes this volume easy to use for reference purposes. This work on bone is of direct and immediate value to the practicing orthodontist and is highly recommended for this purpose.

J. A. S.

News and Notes

American Board of Orthodontics

The next meeting of the American Board of Orthodontics will be held at the Statler Hotel in Detroit, Michigan, April 28 through May 2, 1959. Orthodontists who desire to be certified by the Board may obtain application blanks from the Secretary, Dr. Wendell L. Wylie, University of California School of Dentistry, The Medical Center, San Francisco 22, California.

Applications for acceptance at the Detroit meeting, leading to stipulation of examination requirements for the following year, must be filed before March 1, 1959. To be eligible, an applicant must have been an *active* member of the American Association of Orthodontists for at least two years.

Winners of 1959 Ketcham Awards Announced

It has been announced by the American Board of Orthodontics that the recipients of the Albert H. Ketcham Memorial Awards for 1959 will be Robert H. W. Strang of Bridgeport, Connecticut, and Allan G. Brodie of Chicago, Illinois. As in 1958, two awards will be given in 1959.

Middle Atlantic Society of Orthodontists

The seventh annual meeting of the Middle Atlantic Society of Orthodontists will be held at Haddon Hall, Atlantic City, New Jersey, Oct. 12 to 14, 1958. Reservations may be made by writing directly to the hotel.

Northeastern Society of Orthodontists

The next meeting of the Northeastern Society of Orthodontists will be held Nov. 3 and 4, 1958, at the Queen Elizabeth Hotel in Montreal, Quebec.

The newly elected officers of the Northeastern Society are as follows:

President: Walter R. Bedell
President-Elect: Wilbur J. Prezzano
Vice-President: Henry C. Beebe
Secretary-Treasurer: David Mossberg
Sectional Editor: Joseph D. Eby
Assistant Editor: Brainerd F. Swain
Historian: Leuman M. Waugh
Director: Norman L. Hillyer
Alternate: Richard Lowy

Southern Society of Orthodontists

The thirty-seventh annual meeting of the Southern Society of Orthodontists will be held aboard the luxury cruise ship "M. V. Arosa Sky."

The ship will leave Norfolk, Virginia, on Sunday, Oct. 19, 1958, for Bermuda, W. I. It will return from Bermuda, docking at Norfolk, Virginia, on Friday, October 24.

Denver Summer Seminar

The Denver Summer Meeting for the Advancement of Orthodontic Practice and Research will be held Aug. 3 to 8, 1958, at Writer's Manor, 1730 Colorado Blvd., Denver, Colorado.

The Board of Trustees have arranged the following outstanding program:

B. F. Dewel, D.D.S., Evanston, Illinois.

Principles, Procedures, and Limitations of Serial Extraction in Orthodontic Treatment.

Clinical Analysis of Arch Length Requirements in Orthodontic Treatment.

Diagnostic Importance of the Lower Arch in Case Analysis and Treatment Planning.

Early Diagnosis and Treatment of Dentofacial Growth Deficiencies.

Andrew Francis Jackson, D.D.S., Philadelphia, Pennsylvania.

Infinite Variation of Anatomy

Objectives

Principles of Therapy and Treatment

Robert M. Ricketts, D.D.S., Pacific Palisades, California.

Present Concepts of Heredity

Description and Classification

Recent Concepts of Facial Behavior Under the Influence of Orthodontic Treatment

Orthodontic Treatment Planning

A program of entertainment has also been arranged.

Brooks Bell Installed as President of Texas Group

Dr. Brooks Bell, past-president of the American Association of Orthodontists, has been installed as President of the Dallas County Dental Society, Dallas, Texas.

The Dallas Dental Society will be the host during the 1958 meeting of the American Dental Association.

Hugh T. Berkey Honored by Indiana State Dental Association

Dr. Hugh T. Berkey of Fort Wayne, Indiana, was honored at the Centennial Session of the Indiana State Dental Association, held May 18 to 21, 1958.

Dr. Berkey is a pioneer orthodontist of Indiana, and in honoring him the citation declared, among other things: "Dr. Berkey, an orthodontist, enjoys the complete confidence and good will of his patients, together with the deep respect and affection of his colleagues. He ably represents the entire rosters of membership and of life membership in the I.S.D.A.; he fosters the highest principles in the practice of dentistry; he dignifies his life work by sharing his talents with his fellow men, and he encourages the highest ideals, the best ethics, an honest regard for other practitioners and the sincere desire to serve patients to the utmost.

"He is an active member of many dental organizations—general and specialized; he is a Fellow in the American College of Dentists, and he holds life membership in the

I.S.D.A. and the A.D.A. He also is a past-exalted ruler and life member of the Benevolent Order of Elks. He is a member of Xi Psi Phi dental fraternity, and he received honorary membership in Omicron Kappa Upsilon in 1938. A member of the Half-Century Club of Northwestern University, he also was a member of the Golden Anniversary Class of the American Association of Orthodontists in Dallas in 1953. Since joining that organization, he has missed only five of its meetings."

Necrology Committee

American Association of Orthodontists

Please notify the Necrology Committee of the death of any of our members. This information should be sent immediately to the chairman or to any member of the Committee.

Ernest N. Bach, Chairman
305 Professional Bldg.
Toledo, Ohio

Death of Harry B. Wright

Harry B. Wright, orthodontist of Philadelpha, Pennsylvania, died on May 21, 1958, after an illness of two weeks. He was 61 years old.

Dr. Wright, who was known as the orthodontist explorer, was a native of Philipsburg, Pennsylvania. He studied dentistry at the University of Pennsylvania and obtained his degree in 1918.

He had traveled through the Amazon jungle, talked with headhunters in New Guinea, hunted big game in Africa, and photographed aborigines in almost every part of the world. A number of his articles about people in faraway places appeared in various magazines. He also wrote a book about witchcraft as it is practiced in some of the far corners of the world.

Notes of Interest

Robert H. Ervin, D.D.S., M.S., announces the limitation of his practice to orthodontics exclusively, 858 Pearl St., Suite 316, Eugene, Oregon.

Dr. Warren E. Gerber announces the opening of an additional suburban office at Old Orchard Professional Bldg., 64 Old Orchard, Skokie, Illinois, practice limited to orthodontics.

James E. Meeks, Jr., D.D.S., announces the opening of his office at 419 North Seminary, Florence, Alabama, practice limited to orthodontics.

Edgar Sweren, D.D.S., announces the opening of his office at 36 North Luzerne Ave., Baltimore, Maryland, practice limited to orthodontics.

Jay K. Weiss, D.M.D., announces the opening of an office at 354 Bloomfield Ave., Caldwell, New Jersey, practice limited to orthodontics.

Gene Wood, D.D.S., M.S.D., announces the opening of his office for the practice of orthodontics in the Ridglea Professional Building, 3101 Winthrop, Fort Worth, Texas.

Forthcoming meetings of the American Association of Orthodontists:
1959—Statler Hotel, Detroit, Michigan, May 4 to 7.
1960—Shoreham Hotel, Washington, D. C., April 24 to 28.
1961—Denver, Colorado.
1962—Los Angeles, California.

OFFICERS OF ORTHODONTIC SOCIETIES

The AMERICAN JOURNAL OF ORTHODONTICS is the official publication of the American Association of Orthodontists and its component societies. The Editorial Board of the JOURNAL is composed of a representative of each of the component societies.

American Association of Orthodontists

(Next meeting May 4-7, 1959, Detroit)

President, C. Edward Martinek - - - - - - - - - - Fisher Bldg., Detroit, Mich.
President-Elect, George M. Anderson - - - - - - 3700 N. Charles St., Baltimore, Md.
Vice-President, Ernest N. Bach - - - - - - - - - Professional Bldg., Toledo, Ohio
Secretary, Earl E. Shepard - - - - - - - - - - - 8230 Forsyth, St. Louis, Mo.

Central Section of the American Association of Orthodontists

(Next meeting Sept. 29-30, 1958, Cedar Rapids)

President, Frederick B. Lehman - 1107 Merchants National Bank Bldg., Cedar Rapids, Iowa
Secretary-Treasurer, William F. Ford - - - - - - - 575 Lincoln Ave., Winnetka, Ill.
Director, Elmer F. Bay - - - - - - - - - - 216 Medical Arts Bldg., Omaha, Neb.

Great Lakes Society of Orthodontists

(Next meeting Nov. 2-5, 1958, Pittsburgh)

President, Edwin G. Flint - - - - - - - - - - 8047 Jenkins Arcade, Pittsburgh, Pa.
Treasurer, D. C. Miller - - - - - - - - - - - 40 South Third St., Columbus, Ohio
Director, Robert E. Wade - - - - - - - - - - - 327 E. State St., Columbus, Ohio

Middle Atlantic Society of Orthodontists

(Next meeting Oct. 12-14, 1958, Atlantic City)

President, Gerard A. Devlin - - - - - - - - - - 121 Prospect St., Westfield, N. J.
Secretary-Treasurer, Paul A. Deems - - - - - - - - 835 Park Ave., Baltimore, Md.
Director, George M. Anderson - - - - - - - - 3700 North Charles St., Baltimore, Md.

Northeastern Society of Orthodontists

(Next meeting Nov. 3-4, 1958, Montreal)

President, Walter R. Bedell - - - - - - - - - 49 Market St., Poughkeepsie, N. Y.
Secretary-Treasurer, David Mossberg - - - - - - 36 Central Park S., New York, N. Y.
Director, Norman L. Hillyer - - - - - - - - 230 Hilton Ave., Hempstead, L. I., N. Y.

Pacific Coast Society of Orthodontists

President, Richard Railsback - - - - - - - - - 1333 Grand Ave., Piedmont, Calif.
Secretary-Treasurer, Warren Kitchen - - - - - - 2037 Irving St., San Francisco, Calif.
Director, Richard Railsback - - - - - - - - - - 1333 Grand Ave., Piedmont, Calif.

Rocky Mountain Society of Orthodontists

(Next meeting Sept. 7-9, 1958, Moran, Wyo.)

President, George E. Ewan - - - - - - - - - Bank of Commerce Bldg., Sheridan, Wyo.
Secretary-Treasurer, H. Carlyle Pollock, Jr. - - - 915 South Colorado Blvd., Denver, Colo.
Director, Ernest T. Klein - - - - - - - - - - Republic Bldg., Denver, Colo.

Southern Society of Orthodontists

President, John A. Atkinson - - - - - - - - - - 898 Starks Bldg., Louisville, Ky.
Secretary-Treasurer, H. K. Terry - - - - - - - - 2742 Biscayne Blvd., Miami, Fla.
Director, Edgar Baker - - - - - - - - - - - Professional Bldg., Raleigh, N. C.

Southwestern Society of Orthodontists

(Next meeting Oct. 5-8, 1958, Little Rock)

President, Thermon B. Smith - - - - - - - - - 1122 W. Capitol, Little Rock, Ark.
Secretary-Treasurer, Harold S. Born - - - - - - - 908 S. Johnstone, Bartlesville, Okla.
Director, Nathan Gaston - - - - - - - - - - - 701 Walnut St, Monroe, La.

American Board of Orthodontics

President, William R. Humphrey - - - - - - - - 1232 Republic Bldg., Denver, Colo.
Vice-President, L. Bodine Higley - - - University of North Carolina, Chapel Hill, N. C.
Secretary, Wendell L. Wylie - - - - - University of California School of Dentistry, The Medical Center, San Francisco, Calif.
Treasurer, Jacob A. Salzmann - - - - - - - - - 654 Madison Ave., New York, N. Y.
Director, B. F. Dewel - - - - - - - - - - - - 708 Church St., Evanston, Ill.
Director, Frank P. Bowyer - - - - - - - - - 608 Medical Arts Bldg., Knoxville, Tenn.
Director, Paul V. Reid - - - - - - - - 1501 Medical Arts Bldg., Philadelphia, Pa.

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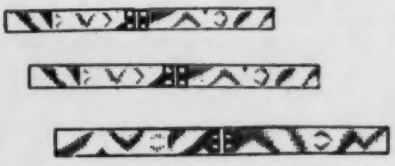

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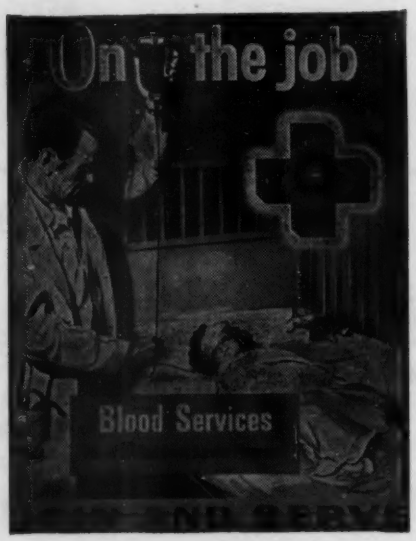

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Practice Administration for THE DENTIST

Edited by **WILLIAM R. MANN, M.S., D.D.S.**, Ann Arbor, Michigan. Associate Professor of Dentistry, School of Dentistry, and Associate Director, W. K. Kellogg Foundation Institute; Graduate and Postgraduate Dentistry, University of Michigan.

and **KENNETH A. EASLICK, A.M., D.D.S.**, Ann Arbor, Michigan. Professor of Dentistry, School of Dentistry, University of Michigan.

1955, 386 pages, 6¾" x 9¾". PRICE, $8.50.

This volume provides a summary of the fundamentals necessary for the efficient, ethical practice of dentistry, for professional improvement, and for participation in community life—a long uncharted area of professional concern. It is the outgrowth of the workshop held at the University of Michigan. Those who attended represented 31 states, the District of Columbia, and four provinces of Canada. Instructors from 26 dental schools were in attendance.

At this workshop dentists, dental hygienists, dental assistants, dental teachers, and others interested in the subject critically presented the data, information, and opinions available regarding the entire area of practice administration and determined the best patterns for the dentist to adopt in organizing and administering his practice and for filling his niche of professional responsibility in his community.

The proper management of accounts, accurate record-keeping, cordial patient relationships, effective use of auxiliary personnel and equipment, efficient financial policies—all these and other aspects of practice administration were fully discussed at the workshop. The conclusions reached appear in "PRACTICE ADMINISTRATION FOR THE DENTIST."

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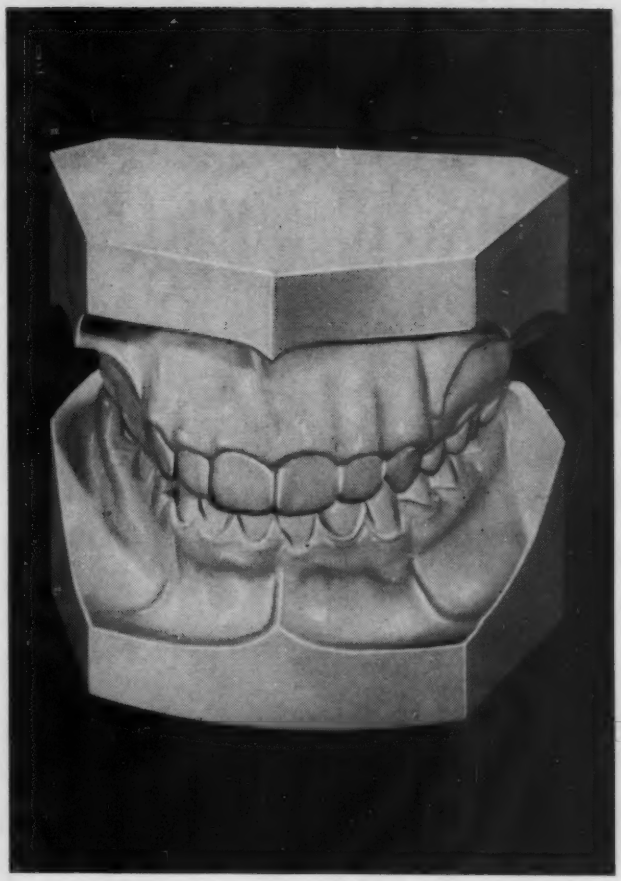

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